5/23/84 LL3040-1 A-

1st Quarter 1984

Bureau of Business & Economic Research

The Fogelman College of Business and Economics

Memphis State University

MID-SOUTH BUSINESS JOURNAL

Volume IV, Number 2 April 1984

MEMPHIS STATE UNIVERSITY

Thomas G. Carpenter ..... President

THE FOGELMAN COLLEGE
OF BUSINESS AND ECONOMICS

M. E. Bond ..... Dean

BUREAU OF BUSINESS AND ECONOMIC RESEARCH

Paul R. Lowry ..... Director
James McFadyen ..... Managing Editor
B. Lewis Alvarado ..... Research Assistant

CONTENTS

Volume IV, Number 2 April 1984

POPULATION CHANGES IN TENNESSEE, 1970-1980 3
H. Ronald Moser and Kenneth W. Hollman

A NEW VERSION OF DEREGULATION: SHELF REGISTRATION AND ITS IMPLICATIONS FOR THE FUTURE 10
Stanley Block

MANAGING AN R & D UNIT 14
Martin R. Moser

DEREGULATION OF PIGGYBACK: ITS IMPACT ON THE MEMPHIS RAILROAD INDUSTRY 19
Thomas G. Ponzurick and R. Neil Southern

A PRELIMINARY EVALUATION OF THE 1983 SOVIET SEED COTTON HARVEST 23
Francis M. Stackenwalt

The MID-SOUTH BUSINESS JOURNAL is published quarterly by the Bureau of Business and Economic Research, Memphis State University, Memphis, Tennessee, 38152, in the months of January, April, July, and October, as a service to the business community. Second-class postage paid at Memphis, Tennessee. POSTMASTER: Send address changes to Bureau of Business Research, Memphis State University, Memphis, Tennessee 38152.

The opinions expressed in the authored articles are not necessarily those of the Bureau, the College, or the University, but are the responsibility of the individual authors. The material may be reproduced without permission if acknowledgment of the source is given.

An Equal Opportunity University PS 2/84-1101

POPULATION CHANGES IN TENNESSEE, 1970-1980

*H. Ronald Moser and Kenneth W. Hollman**

The *1980 Census of Population* contains a wealth of data concerning the size, characteristics, and distribution of Tennessee's population. These data have numerous uses and applications. They are useful to state planners, educators, businessmen, and others in identifying and dealing with problems which they face. A study of population shifts and changes is important for understanding the need for schools, roads, parks, and other social services; the nature of the state's labor market; and the dynamics of the state's economy. The data also have implications for those in the private sector. They enable the businessman who wishes to stay ahead of his competitors to spot demographic trends as they develop, to track them over time, to analyze their implications, and to capitalize on them as quickly as possible.

The purpose of this article is to extend the audience for 1980 census data for Tennessee and to provide some elementary analysis of the results. Population changes are examined at the state level as well as at smaller political subdivision levels. Comparisons are drawn at various points between population changes in Tennessee and those at the national and regional levels.

Total Population

The 1980 census count showed that Tennessee has a total population of 4,591,120.[1] This figure represents a growth of 665,102 people or 16.9 percent from the 1970 population of 3,926,018. Tennessee's growth rate during the decade was almost 50.0 percent higher than the comparable national growth rate of 11.4 percent. Only 19 of the 50 states experienced a larger percentage increase than did Tennessee. Tennessee ranked seventeenth among the states in total population size in 1980, the same in 1970, and accounted for 2.9 percent of the country's population growth during the decade.

Not only did Tennessee's population grow faster than that of the nation, it also grew faster than the population in many neighboring states. As a group, the 11 southern states experienced a population increase of 22.4 percent during the decade of the 1970s. Every state in the region shared in this increase, with Tennessee being the median state in terms of population growth. Each of the southern states recorded a percentage increase greater than the national average. Table 1 shows the 1970 and 1980 population figures for the southern states.

Table 1
POPULATION INCREASE OF ELEVEN SOUTHERN STATES, 1970-1980

State	Population 1970	Population 1980	Percent Change
Florida	6,791,418	9,746,324	43.5
Texas	11,198,655	14,229,191	27.1
South Carolina	2,590,713	3,121,820	20.5
Georgia	4,587,930	5,463,105	19.1
Arkansas	1,923,322	2,286,435	18.9
Tennessee	3,926,018	4,591,120	16.9
North Carolina	5,084,411	5,881,766	15.7
Louisiana	3,644,637	4,205,900	15.4
Virginia	4,651,448	5,346,818	14.9
Mississippi	2,216,994	2,520,638	13.7
Alabama	3,444,354	3,893,888	13.1
Total	50,059,900	61,287,005	22.4

Source: U.S. Department of Commerce, Bureau of Census, *1980 Census of Population*, Volume 1, *Characteristics of the Population*, Chapter A, "Number of Inhabitants." There is a separate publication for each of the eleven states, published between January and April 1982.

Another significant fact is that the population in Tennessee is increasing at an accelerating rate. The state's population growth rate was only 8.4 percent in the 1950s, but it rose slightly to 10.1 percent in the 1960s before climbing to 16.9 percent in the 1970s. There are slightly more than twice as many Tennesseans today as in 1910, but if the growth rate of the 1970s continues, the state's population will double again by 2030. This rapid growth rate raises many questions about the state's ability to provide necessary jobs and adequate social services to sustain its growing number of human members.

County Growth

Every year thousands of Tennesseans make the momentous decision to move to a new abode. Sometimes the relocation involves emigration to another country or to another state in the U.S. More often, however, it is a movement across town or to another city or county in the state.

Primarily because of this human ebb and flow, population growth is rarely uniform across areas and regions. In the analysis below, data will be examined to show exactly where population growth occurred by county in Tennessee in the 1970s. The data will then be disaggregated further

**The authors are, respectively, Associate Professor of Marketing and Professor of Economics and holder of the Martin Chair of Insurance, Middle Tennessee State University, Murfreesboro, Tennessee.*

to point out significant areas of population growth by place, city, and metropolitan area. A later section will identify factors which appear to be associated with changes in population. For comparative and analytical purposes, counties will be grouped by the three traditional grand divisions—Eastern, Middle, and Western. This grouping provides the basis for a more systematic study of population trends and lends a regional dimension to the study.

As mentioned above, the state's population grew by 16.9 percent during the last decade. Population change in individual counties ranged from stunning growth amounting to 68.8 percent in Williamson County and 63.8 percent in Cheatham County to a decline of 7.7 percent in Lake County. Lake County, in the extreme western part of the state, was the only county which recorded a decrease in population during the last decade. Sixty-one counties grew faster on a proportionate basis than the state as a whole, while 34 counties grew by less than the state average. Table 3 at the end of this article shows the population changes in Tennessee from 1970 to 1980 for each of the state's 95 counties.

The most populous county in Tennessee in 1980 was Shelby (Memphis). The population buildup in this area is due to the fact that Memphis is a wholesaling and processing center for soybeans, cotton, and other crops that grow on both sides of the Mississippi River; the site of a large health services complex; home to a large airport that serves a large part of the Mid-South region; the site of a major university; and the headquarters for a number of very large corporations. The second, third, and fourth most populous counties in 1980 were Davidson (Nashville), Knox (Knoxville), and Hamilton (Chattanooga) counties, respectively. This rank order did not change from 1970 to 1980.

Shelby County also gained a larger number of people than any other county over the decade. The 1980 census count showed Shelby County with 55,002 more residents than it had in 1970. In addition to Shelby, there were seven other counties which recorded population gains of over 20,000 people. They were Knox with 43,401; Hamilton with 32,663; Davidson with 29,934; Sumner with 29,524; Rutherford with 24,630; Williamson with 23,685; and Montgomery with 20,621. All of these counties either included or were adjacent to metropolitan and/or large urban areas which offer greater economic opportunities as well as social advantages which are conducive to population buildup. This explains why counties containing such population nodes experienced a greater likelihood of growth in the 1970s.

Size of county was positively related to population growth in Tennessee in the 1970s. Absolute growth was clearly greatest in the more populous counties, although the largest counties experienced relatively slow growth. For example, neither of the four largest counties grew as rapidly on a relative basis as the state as a whole. However, these four counties had larger numbers of people added during the 1970s than did any of the other 91 counties. The correlation between county size and growth extends to other counties as well. Of the 10 counties in Tennessee with the largest absolute increases in population over the decade, only two (Williamson and Wilson counties) had a population of less than 50,000 in 1970.

Population growth was not equally distributed among the grand divisions of the state. The division experiencing the greatest population growth was the Middle division with a 21.3 percent increase. The Eastern division was second with a 19.1 percent increase, slightly above the state-wide growth rate of 16.9 percent and well above the national growth rate of 11.4 percent. The Western division grew by only 9.8 percent during the decade. These proportional differences serve as a reminder that individual regions may perform substantially better or worse than the entire state, and that simple generalizations about population growth for a state as diverse as Tennessee should be avoided.

Analysis of census data reveals—as might be expected—that population growth measurements for a single grand division are often not representative of all its counties. For instance, several counties or areas of population concentration grew much faster in the 1970s than did the division of which they are a part. This was particularly evident in Middle Tennessee, where 10 counties of this division's 41 counties grew by more than 30.0 percent during the decade, while only two counties grew by less than 10.0 percent.

The population buildup around Nashville helps explain the large number of counties experiencing growth in Middle Tennessee. Five suburban counties in the Nashville SMSA were among the top 10 counties in the state in terms of relative numbers of people added in the 1970s. Four of these counties experienced growth rates of over 50.0 percent during the decade. The centrality associated with Nashville—the city is a transportation and commercial hub, industrial nexus, seat of state government, home of powerful financial institutions, and the site of numerous small business enterprises—has enabled it to dominate and overwhelm the smaller towns and cities in the hinterland. The rapid growth of the Nashville metropolitan area raises many questions about the urban sprawl over Davidson County and the contiguous counties and the mushrooming subdivisions throughout the area.

The Eastern division grew less rapidly than the Middle division, but it also showed widely differing growth among counties. Seven counties of East Tennessee experienced population growth of over 30.0 percent, led by Sevier, Meigs, and Rhea counties, and two counties recorded a growth rate of less than 10.0 percent. As noted above, the Western division registered a growth rate significantly below the state and national averages in the 1970s. Neither of the 21 counties in West Tennessee recorded a gain in population of over 30.0 percent, while eight counties registered growth of less than 10.0 percent. Shelby County, and to a lesser degree Madison County (Jackson), accounted for much of the population increase in this division. The counties contiguous to Shelby County did not experience the sharp population surge in the 1970s which those adjacent to Nashville enjoyed. One reason is

that the primary beneficiaries of the population spillover from the Memphis metropolitan area were neighboring counties in North Mississippi.

City Growth

Of course, Tennessee's population is not evenly distributed over the state. Many counties are highly rural and do not contain a city, but every county has at least one place that serves as a trading center and seat of government. On the other hand, even the most densely populated counties contain some relatively empty area.

An examination of census figures with respect to the change in the size of population centers sheds significant light on population flows from 1970 to 1980. For purposes of analyzing the differential rate of growth in communities and places of different sizes, cities and towns have been grouped by density in Table 2. The table shows that Tennessee had 138 places with 2,500 or more inhabitants in 1980, as compared to only 105 a decade earlier. This represents a 31.4 percent increase during the period from 1970 to 1980. These places, many of which are county seats, are located throughout the state, but the larger ones are concentrated in the Eastern and Middle divisions of the state.

Table 2
POPULATION CHANGE FOR TENNESSEE CITIES, 1970-1980

	1970		1980	
City Size	Number of Cities	Total Population	Number of Cities	Total Population
Under 1,000	142	71,159	128	66,387
1,000-2,499	80	126,314	113	179,390
2,500-4,999	42	148,850	58	203,500
5,000-9,999	31	215,117	39	276,316
10,000-24,999	22	329,431	28	406,925
25,000-49,999	6	192,102	8	260,766
50,000-99,999	0	0	1	54,777
100,000 and over	4	1,353,336	4	1,436,927
Total	327	2,436,309	379	2,884,988

Table 2 indicates that the largest absolute population increase was recorded during the 1970s in those four cities with populations of 100,000 and over. Only one size class—the under 1,000 category—showed a decrease in either number of cities or population. There was a greater tendency for gains than for losses in every other size class. Moreover, the total population increase in all of the cities with under 100,000 population was greater than the total for cities with 100,000 and over, even though cities with 100,000 and over population contained a larger number of people. The nation-wide population shift from large metropolitan areas to small towns and rural areas is quite apparent in Tennessee.

There is, of course, no guarantee that current county and city growth patterns in Tennessee will continue. However, the plausible association of these increases with economic and natural resource development suggests that the major trends will continue. Moreover, if the past is any indicator of the future, new dynamics of population growth will likely occur that will help restructure Tennessee's society and call into question current population forecasts and economic projections.

Rural vs. Urban Trends

People all over the world are moving from farms and rural areas to urban areas, or trying to move. This is as true in Tennessee as elsewhere. While the phenomenal rush to urbanize seems to have abated somewhat, partially because of the stresses that are imposed on people who move to urban areas, the trend is still real enough to warrant serious study.

When Tennessee's population changes are examined in a rural-urban context, an interesting array of facts is revealed. The state's population was 60.4 percent urban in nature in 1980 as compared with 59.1 percent in 1970. The 1980 census classification of the population reflects a 19.6 percent increase in urban population from 1970 to 1980. In contrast, the rural population increased by only 13.2 percent over the same period. Therefore, the human migration stream to the state's cities continues, albeit more slowly, as it has since statehood. Tennessee is primarily an urban state, but ruralization is still quite prevalent.

Census data show that there were sharp variations in the urban and rural population increases between different regions of the state. Each of the three grand divisions experienced an increase in *rural* population between 1970 and 1980. The highest rate of rural population growth occurred in the Middle Tennessee division (22.2 percent), where only 4 of the 41 counties showed a decrease in this population component for the decade. The Eastern division experienced a 9.6 percent rural population increase, with five counties showing declines, and the Western division had a 7.2 percent increase, also with five counties recording a decrease in rural population. In terms of absolute increase, the Middle division experienced the largest gain in rural population between 1970 and 1980 (116,179).

There were also sharp regional variations in *urban* growth rates. The Eastern division led easily with a growth rate of 28.6 percent for the decade. Only two counties in this division recorded a decrease in their urban population. They were Anderson (-2.0 percent) and Hamblen (-3.1 percent). There were seven counties in the Eastern division with some urban population in 1970 that had increases of over 50.0 percent in this population category for the 10-year period. One reason for the large number of counties experiencing growth in East Tennessee is the large number of small- to medium-size towns in that division. While there were only 110 incorporated places in the Western division and 123 in the Middle division, there were 146 such places in the Eastern division. Many of these places are the site of small manufacturing firms—particularly such labor-intensive industries as textiles and synthetic fibers, though many of the newer manufacturing firms produce components and subassemblies for more complex products in growth industries—and are located in counties from Chattanooga to the Tri-Cities area. These places also often serve as residences for workers who

commute to a larger central city—such as Knoxville, Chattanooga, or Johnson City—and they oftentimes attract activities away from the larger center by providing a more attractive and economical domiciliary site (lower taxes, lower rents, attractive land values, etc.). Finally, the amenities available in the area for retirees—good fishing, nearby universities, beautiful scenery, and pleasant weather—help account for the population growth in the Eastern division.

The Middle division recorded an urban population increase of 20.5 percent from 1970 to 1980. Four counties in this division with some urban population in 1970—all in the Nashville SMSA—had an urban growth rate of over 50.0 percent during the decade. Only one Middle division county lost urban population in the 1970s. The Western division had a 10.9 percent increase in urban population from 1970 to 1980. None of the counties in this division recorded an increase in urban population of 50.0 percent or more, and 3 of the 21 counties that comprise this grand division lost in urban population for the 10-year period.

Each of the grand divisions recorded large absolute increases in urban population during the 1970s. The Eastern division led again with an absolute increase of 214,389 persons. The Middle division was second with 148,676 persons, and the sparsely populated Western division—dominated heavily by growth of the Memphis SMSA—recorded 92,050 persons. This clustering of population in Tennessee's urban areas, which often can provide residents with significant economic and social advantages, will help dictate the path of economic development which the state chooses to take. It will also influence the capacity of local institutions to anticipate and adapt to changes in the size and composition of their population and to generate goods and services which the state's increasingly affluent populace will likely expect.

While the above figures may suggest that Tennessee is becoming more urbanized, it seems clear that rural areas constitute a proportion of the total population so large, in both absolute and relative terms, that it can hardly be ignored. The 1,817,547 rural residents in Tennessee must be taken into consideration in any study of the state's population and in any planned attempt at influencing future population trends in the state. The future of rural areas in Tennessee does not appear to be one of imminent decline.

Economic and Marketing Observations

It was implied in the beginning of this article that population growth and movement bear a cause-and-effect relationship to economic and social change. Economic and demographic growth are interdependent. The opportunity for jobs, differences in income, the level of business activity, and stability in the agricultural sector are all reflected in these complex linkages. While no attempt will be made in this article to specifically identify nor to evaluate all the factors that propel population growth—the data are insufficient to pinpoint and measure the magnitude and relative importance of many of these ties—a number of comments will be made concerning how the trends in population growth during the last decade relate to trends in other demographic and economic variables. Since only limited statistical testing has been utilized in this regard, the validity of some of the apparent relationships may be open to question.

As already noted, Lake County was the only county in Tennessee that lost population during the 1970s. One explanation for this county's population decline is that it had a large percentage of its land area in farms and received a much higher than average percentage of personal income from farming (based on data for 1980). Since farm income has not been sufficient to compete with rising wages in the professions and industry, many young people from this county have prepared themselves through education and training for skills in other occupations and have moved away. An analysis of the age structure in Lake County shows, as might be expected, that it has a median age higher than the state average. It has lost young people to other regions which have experienced stronger economic growth.

It is interesting to note that five of the six counties in Tennessee which experienced negative population growth or the lowest positive percentage growth from 1970-1980—Lake, Gibson, Crockett, Haywood, and Hardeman—are located in highly rural and agricultural West Tennessee. In fact, 7 of the 10 counties with the least percentage growth in the 1970s are in the Western division of the state. Migration out of state or to other counties in Tennessee where jobs are more readily available helps to account for this low growth.

It would appear that when a county has a large percentage of its land area in farming, and when that county is dependent on the farm sector for a major part of its income, there is probably less economic opportunity in that county than in other economic areas. Furthermore, the need for manpower has diminished greatly in the highly mechanized agricultural sector, a factor that has directly or indirectly adversely affected businesses in the service industries, in wholesale and retail trade, and in many other sectors of the economy. The net result is that many people have had to leave such counties and look elsewhere for jobs.

Despite loss in population by West Tennessee counties because of declining or slowly growing farm income, many counties in Tennessee with high percentages of income from agriculture and a large percentage of their land area in farming experienced population gains greater than that of the state as a whole. In most such counties, other influencing factors were easily identifiable. For instance, rapidly growing Williamson, Rutherford, Sumner, and Wilson counties in Middle Tennessee all had over 60.0 percent of their land in farming in 1980, but all four counties experienced at least a 40.0 percent increase in population for the decade of the 1970s. The obvious reason for this growth is their proximity to the Nashville SMSA which they serve as "bedroom communities." Many workers live in the referenced counties because of their inability to find homes in Nashville; lower rents, land prices, and living costs; or conducive lifestyles. Also, some

people have migrated to the suburbs in these counties because of the perception that they are a good place to raise children.

Another factor which seems to be significantly related to population growth is income. Income statistics by county often provide an opportunity to assess the extent to which the patterns of change during a given period in the level of economic activity parallel population change. Despite some obvious faults as a measure of economic well being, income is the one variable that is of more interest to more people than any other. Income data by state and smaller political subdivisions are very important and useful for planning and decision making and for economic base studies and analyses. These data are particularly important in a study of population flows, because individuals often move from one county or state to another where jobs are more plentiful and where wages and salaries are higher.

There was a marked tendency for the grand division with high (low) average per capita personal incomes in the 1970s to have high (low) population growth rates during the decade from 1970-1980. The Middle division, with the highest population growth rate during the decade, also recorded the highest per capita income level. Income growth in the Middle division is partially due to the high level of economic activity in the Nashville metropolitan area. The Eastern division experienced the second highest population growth rate and also the second highest average income. Income growth of this area was particularly heavy in Anderson, Knox, and Hamilton counties. Knox and Hamilton counties are each home to a major university, which provides stable and relatively high-paying employment, and each also serves as a transportation, commercial, service, and financial center for a sizable portion of the state. The uranium-enriching facility at Oak Ridge—as well as other "high-tech" industries along the Tennessee Technology Corridor—had a favorable effect on income growth over a wide area centered in Anderson County. Income growth was also heavy in the counties containing the Tri-Cities area, where the production of chemical products (the state's second largest manufacturing sector after apparels) provides a major source of employment.

The Western division, which experienced the smallest growth rate in the 1970s, also had the lowest average income for the decade. As indicated previously, sagging farm incomes in some of the highly agricultural Western division counties help to account for the low per capita incomes in that region. The relatively high incomes in Shelby, Madison, and Obion counties were not great enough to offset the very low incomes in most of the Western division counties.

Although the link between per capita income and changes in population at the county level is far from being consistent, the two variables generally tend to move together over the long run, particularly in the large metropolitan populations. In those cases where a county did not fall into the usual or expected pattern of population changes as related to its income level, other factors are identifiable which may have influenced the population and/or income growth pattern. For instance, locational factors were influential in Dickson County, which had a relatively low per capita income level in 1980, but which experienced a 36.7 percent increase in population for the decade. An obviously important cause of this county's population growth is its proximity to the Nashville metropolitan area. Much the same thing can be said about Bradley County—located near the Chattanooga metropolitan area—which had a significant population increase in the 1970s (33.3 percent) but a relatively low income level in 1980. Anderson County, with relatively low population growth of only 11.7 percent for 1970-1980, recorded a high per capita income (third after Williamson and Davidson counties) in 1980. One explanation is that Anderson County is home to several very large and high value-added industries. Also, it is located near Knoxville—a relatively large metropolitan area.

The salubrious effect which Knoxville, Nashville, and Chattanooga have on the income and population of at least one contiguous county was not evident in Memphis. Neither of the two Tennessee counties contiguous to Shelby—Tipton and Fayette—showed either extraordinary growth rates or high per capita incomes in 1980. However, both a burgeoning population and a high per capita income were observed in an adjoining out-of-state county—DeSoto County, Mississippi—which benefited far more from the growth of the Memphis metropolitan area than did adjacent in-state counties.

Summary and Conclusion

This article has stressed the usefulness of demographic data in general, and population location and dispersion data in particular, for understanding Tennessee's social and economic make up. These data reveal that Tennessee's population increased 16.9 percent (665,102 persons) from 1970 to 1980. This contrasts with the national population growth rate of 11.4 percent during the decade. Tennessee was the recipient of the continuing shift of employment, income, and population from the economically mature states in the North to the less industrialized states of the South. However, Tennessee grew even faster during the relevant period than many other southern states.

In the above analysis, a pattern emerges which shows that significant population growth occurred in the last decade in the Middle and Eastern divisions of the state. Each division had population nodes which accounted for much of their increase. Specifically, four Middle Tennessee counties—all located in the Nashville SMSA—recorded increases in population from 1970 to 1980 of more than 50.0 percent and accounted for much of the population increase recorded for this division. The Eastern division of the state recorded an increase in population of 19.1 percent during the decade. Population buildups in Knox, Hamilton, and Washington counties explain a significant part of this increase. Several communities with high concentrations of retirees are located in counties in this division. The population increase in Shelby County, and to a lesser degree in Madison County, accounted for a major

part of the 9.7 percent increase recorded in the Western division.

There was also a substantial increase in city population throughout the state. Cities in every size category except the under 1,000 class showed increases. Although the Eastern and Middle divisions of the state again experienced the greatest relative city growth for the decade, Memphis, located in the western part of the state, experienced the largest absolute gain with 55,002 persons. The data do not reveal a significant population flow from non-metropolitan areas (small towns and rural areas) to large metropolitan areas in Tennessee.

Census data show that Tennessee's population is presently 60.4 percent urban and 39.6 percent rural in nature. There was a 19.6 percent increase in the state's urban population during the 1970s, in contrast to a 13.2 percent increase in the rural population. However, the rural population is still a sizable segment of the state's population. It remains true that urban counties with a larger part of their economies devoted to manufacturing, commerce, and service have an edge over rural agricultural counties in attracting and retaining population, despite the problems of congestion, inadequate housing, crime, and noise pollution which often exist in cities. To some degree, the urban problems of congestion and overcrowding in the state's larger cities may be viewed in part as the result of the inability of rural areas to attract and retain population. Therefore, it is useful to study rural and urban population growth patterns in combination rather than individually.

Data in this report may be helpful to government officials and businessmen. It will help provide specific data about where population growth is concentrated, where efforts to provide social services should be focused, and the areas of the state that are most appropriate sites for particular facilities or organizations. A thorough knowledge of state and county impacts of known population changes can help government agencies and private businesses reduce planning errors and utilize their limited resources more efficiently.

FOOTNOTES

[1]Population data reported in this article are extracted from various census publications for the period from 1900 to 1980. Sources and methods of computation for figures will be supplied to any reader upon request.

Table 3
POPULATION CHANGE FOR TENNESSEE COUNTIES AND COUNTY RANK, 1970-1980

County	1970 Census		1980 Census		1970-80 Change		1970-80 Change	
	Number	Rank	Number	Rank	Number	Rank	Percent	Rank
Western Division Counties								
Benton	12,126	71	14,901	70	2,775	59	22.9	33
Carroll	25,741	36	28,285	43	2,544	63	9.9	84
Chester	9,927	77	12,727	77	2,800	58	28.2	21
Crockett	14,402	62	14,941	68	539	93	3.7	91
Decatur	9,457	78	10,857	79	1,400	82	14.8	70
Dyer	30,427	26	34,663	29	4,236	43	13.9	73
Fayette	22,692	44	25,305	46	2,613	62	11.5	81
Gibson	47,871	14	49,467	19	1,596	79	3.3	93
Hardeman	22,435	45	23,873	51	1,438	81	6.4	90
Hardin	18,212	54	22,280	54	4,068	46	22.3	35
Haywood	19,596	51	20,318	57	722	91	3.7	91
Henderson	17,360	55	21,390	56	4,030	47	23.2	32
Henry	23,749	42	28,656	41	4,907	39	20.7	43
Lake	8,074	82	7,455	87	- 619	95	- 7.7	95
Lauderdale	20,271	50	24,555	49	4,284	42	21.1	40
Madison	65,774	7	74,546	11	8,772	20	13.3	76
McNairy	18,369	53	22,525	53	4,156	44	22.6	34
Obion	30,247	27	32,781	33	2,534	64	8.4	86
Shelby	722,111	1	777,113	1	55,002	1	7.6	87
Tipton	28,001	32	32,930	31	4,929	38	17.6	57
Weakley	28,827	30	32,896	32	4,069	45	14.1	72
Middle Division Counties								
Bedford	25,039	38	27,916	44	2,877	56	11.5	81
Cannon	8,467	80	10,234	80	1,767	78	20.9	42
Cheatham	13,199	66	21,616	55	8,417	21	63.8	2
Clay	6,624	87	7,676	86	1,052	85	15.9	66
Coffee	32,572	25	38,311	26	5,739	32	17.6	57
Davidson	447,877	2	477,811	2	29,934	4	6.7	89
DeKalb	11,151	75	13,589	76	2,438	66	21.9	38
Dickson	21,977	47	30,037	37	8,060	22	36.7	11
Fentress	12,593	67	14,826	71	2,233	72	17.7	54
Franklin	27,289	33	31,983	35	4,694	40	17.2	60
Giles	22,138	46	24,625	47	2,487	65	11.2	83
Grundy	10,631	76	13,787	73	3,156	52	29.7	18

(continued)

Table 3 (continued)

County	1970 Census Number	1970 Census Rank	1980 Census Number	1980 Census Rank	1970-80 Change Number	1970-80 Change Rank	1970-80 Change Percent	1970-80 Change Rank
Hickman	12,096	72	15,151	67	3,055	53	25.3	29
Houston	5,853	89	6,871	90	1,018	86	17.4	59
Humphreys	13,560	65	15,957	65	2,397	68	17.7	54
Jackson	8,141	81	9,398	83	1,257	83	15.4	69
Lawrence	29,097	29	34,110	30	5,013	47	17.2	60
Lewis	6,761	85	9,700	81	2,939	55	43.5	6
Lincoln	24,318	40	26,483	45	2,165	75	8.9	85
Macon	12,315	70	15,700	66	3,385	50	27.5	22
Marshall	17,319	56	19,698	58	2,379	69	13.7	75
Maury	44,028	16	51,095	17	7,067	25	16.1	64
Montgomery	62,721	9	83,342	9	20,621	8	32.9	16
Moore	3,568	95	4,510	94	942	88	26.4	26
Overton	14,866	60	17,575	61	2,709	60	18.2	52
Perry	5,238	90	6,111	92	873	89	16.7	62
Pickett	3,774	93	4,358	95	584	92	15.5	68
Putnam	35,487	21	47,690	22	12,203	15	34.4	13
Robertson	29,102	28	37,021	27	7,919	24	27.2	24
Rutherford	59,428	11	84,058	8	24,630	6	41.4	8
Sequatchie	6,331	88	8,605	85	2,274	71	35.9	12
Smith	12,509	68	14,935	69	2,426	67	19.4	47
Stewart	7,319	84	8,665	84	2,346	70	18.4	51
Sumner	56,266	12	85,790	7	29,524	5	52.5	3
Trousdale	5,155	92	6,137	91	982	87	19.0	48
Van Buren	3,758	94	4,728	93	970	90	25.8	27
Warren	26,972	34	32,653	34	5,681	33	21.1	40
Wayne	12,365	69	13,946	72	1,581	80	12.8	79
White	16,329	58	19,567	59	3,238	51	19.8	46
Williamson	34,423	23	58,108	14	23,685	7	68.8	1
Wilson	36,999	20	56,064	15	19,065	9	51.5	4
			Eastern Division Counties					
Anderson	60,300	10	67,346	13	7,046	26	11.7	80
Bledsoe	7,643	83	9,478	82	1,835	77	24.0	31
Blount	63,744	8	77,770	10	14,026	13	22.0	37
Bradley	50,686	13	67,547	12	16,861	10	33.3	15
Campbell	26,045	35	34,923	28	8,878	19	34.1	14
Carter	43,259	17	50,205	18	6,946	28	16.1	64
Claiborne	19,420	52	24,595	48	5,175	36	26.6	25
Cocke	25,283	37	28,792	38	3,509	49	13.9	73
Cumberland	20,733	48	28,676	40	7,943	23	38.3	10
Grainger	13,948	63	16,751	62	2,803	57	20.1	44
Greene	47,630	15	54,422	16	6,792	29	14.3	71
Hamblen	38,696	19	49,300	20	10,604	16	27.4	23
Hamilton	255,077	4	287,740	4	32,663	3	12.8	78
Hancock	6,719	86	6,887	89	168	94	2.5	94
Hawkins	33,757	24	43,751	23	9,994	17	29.6	19
Jefferson	24,940	39	31,284	36	6,344	31	25.4	28
Johnson	11,569	74	13,745	74	2,176	74	18.8	49
Knox	276,293	3	319,694	3	43,401	2	15.7	67
Loudon	24,266	41	28,553	42	4,287	41	17.7	54
McMinn	35,462	22	41,878	24	6,416	30	18.1	53
Marion	20,577	49	24,416	52	3,839	48	18.7	50
Meigs	5,219	91	7,431	88	2,212	73	42.4	7
Monroe	23,475	43	28,700	39	5,225	35	22.3	35
Morgan	13,619	64	16,604	63	2,985	54	21.9	38
Polk	11,669	73	13,602	75	1,933	76	16.6	63
Rhea	17,202	57	24,235	50	7,033	27	40.9	9
Roane	38,881	18	48,425	21	9,544	18	24.5	30
Scott	14,762	61	19,259	60	5,503	34	30.5	17
Sevier	28,241	31	41,418	25	13,177	14	46.7	5
Sullivan	127,329	5	143,968	5	16,639	11	13.1	77
Unicoi	15,254	59	16,362	64	1,108	84	7.3	88
Union	9,072	79	11,707	78	2,635	61	29.0	20
Washington	73,924	6	88,755	6	14,831	12	20.1	44

A NEW VERSION OF DEREGULATION: SHELF REGISTRATION AND ITS IMPLICATIONS FOR THE FUTURE

*Stanley Block**

In March 1982, the Securities and Exchange Commission introduced a new rule that has profoundly changed the nature of investment banking. Of equal importance, it has also changed the nature of corporate financial management. Rule 415 specifies that corporations can file a single comprehensive registration statement with the SEC that lays out their plans for future financing over the following two years. With the registration statement thus sitting "on the shelf" at the SEC, companies can sell some or all of their securities when market conditions appear appropriate.

This is very different from the traditional procedure in which a comprehensive, time-consuming registration statement must be filed each and every time the corporation issues securities. Under shelf registration, securities are brought to the market instantaneously, leaving little time for underwriters to put together a syndicate. Typically, large underwriters simply bid on the deal and handle it by themselves (or perhaps with another large underwriter). As an example, in 1982 Goldman Sachs transacted, by itself, a shelf registration of a $75 million debt offering for Union Camp Corporation. Two years earlier, there were 70 underwriters involved in a similar Union Camp offering.

Shelf registration is part of the federal government's emphasis on deregulation. The shift toward less federal government involvement in the issuance of securities is, perhaps, the most significant reversal of security regulation since the passage of the Securities Act of 1933 and the Securities Exchange Act of 1934. For fifty years, the working assumption has been that a federal watchdog was necessary at all points in the issuance of securities to insure the public interest. U.S. capital markets were portrayed as the model to the rest of the world in the provision of timely data. If a firm could meet the registration and reporting procedures in the United States, chances are it could meet them anywhere in the world. While shelf registration in and of itself does not change the full and immediate disclosure requirements in the United States, it is a significant move toward less regulation and greater individual corporate responsibility in the provision of information.

In this article, the author considers the impact of shelf registration on the investment banking industry, on corporate financial management, and on the investing public.

Investment Banking and Shelf Registration

When deregulation has come to other industries such as the airline or stock brokerage industries, the emphasis has been on survival of the fittest. The stronger and more efficient have prospered, while smaller, less efficient firms have diminished in importance. Ultimately, there has occurred more concentration in the industry brought about by business failures and mergers and acquisitions. The same pattern appears to be taking place in the investment banking industry.

Shelf registration is relatively new so it is difficult to assess all its implications. Furthermore, while shelf registration has the potential to replace the traditional syndicated offerings over the long-term, they still co-exist. For example, from March 1982 to year-end 1982, there were $16 billion in shelf registration debt offerings out of total debt offerings of $48.5 billion. In the equity sector, shelf registration represented $1.96 billion out of $16 billion.[1] The balance in each instance was made up of traditional syndicated offerings. In 1983, the percentage of shelf registered issues to syndicated offerings continued to increase.

More important, for purposes of this analysis, is the highly concentrated and competitive nature of these shelf registrations. Two investment banking firms, Morgan Stanley and Salomon Brothers, did almost half the shelf issues in 1982.[2] By including three other major investment banking houses, Merrill-Lynch White Weld, Goldman Sachs, and First Boston, the total concentration in shelf registration is up to 75.0 percent.[3] While there has always been a degree of concentration in the investment banking industry, this far exceeds historical precedents. Firms that have had a presence as lead underwriters in traditional syndicated offerings such as Dillon Read, Bear Stearns, and Lazard Freres show little or no evidence of activity in

**The author is Texas American Bank/Fort Worth Professor of Finance, Texas Christian University, Fort Worth, Texas.*

shelf registration offerings. As an example, Dillon Read was the principal investment banker for CIT Financial as late as April 1982. During the next six months, CIT did four shelf registration deals in which Dillon Read was not represented even once.

The reason for the capital market oligopoly related to shelf registration deals is that it is a very risky business. Only those investment banking houses that are highly capitalized and experienced in risk management have chosen to play the game. In the traditional syndicated deals the risks are not nearly so great. First of all in the syndicated arrangement, all features of the deal are carefully negotiated between the issuing corporation and the lead investment banker. The concerns of both parties are taken into consideration. The risk that inevitably belongs to the investment banker is further divided among the members of the syndicate.

Under shelf registration, there is no longer friendly negotiations, but rather competitive bidding for corporate offerings (similar to that in the government bond market). The popular term for an underwriter getting an offering is a "bought-deal." The bought-deal generally goes to the investment banking house that allows itself the smallest spread in taking the issue to market. If Consolidated Iron and Steel is selling for $40 a share, and Morgan Stanley will do a deal on a 0.5 percent spread (pay the corporation $39.80 with the anticipation of selling at $40), while Goldman Sachs wants a 0.7 percent spread, Morgan Stanley will probably get the deal.

The normal procedure is for the issuing corporation to take a portion of the securities that have been registered under Rule 415 off the shelf and let the investment bankers know it is taking bids. Interested investment bankers move very quickly to make their proposals. A deal may be put together in a matter of hours. An aggressive investment banking house may be bidding on six or seven deals in one day. Needless to say, a strong capital base is needed for this kind of fast-moving activity.

Competitive bidding has tended to cut down the normal underwriting spread, thus decreasing profitability and increasing risk. At the extreme, Salomon Brothers actually did a spreadless common stock deal for Gulf States Utilities in October 1982,[4] and Morgan Stanley sustained a negative spread on AT&T in May 1982.[5] While these are the exceptions, they indicate the nature of a competitive marketplace. More generally, the spreads average 0.5 percent to 1.0 percent, with the large volume to the major investment houses compensating for the declining profit margins.

Concentration in the industry is taking place not only as a function of fewer firms choosing to stand up to the rigors of competitive bidding, but also because there is no longer the "security blanket" positions associated with being part of a syndicate. While many smaller regional investment firms never really aspired to be lead bankers, they were able to prosper within the industry as a result of being nurtured through syndicate participations. These firms were happy to be one of the 25 or so underwriters in a deal, perhaps with less than 1.0 percent of the action. Since shelf registration calls for instantaneous deals without the benefit of long, extended syndicated distributions, smaller firms have had difficulty in establishing their normal positions. As procedures under shelf registration become better established, it is possible that preformed bidding syndicates, that include smaller underwriters, could be utilized. This might be analogous to syndicates that are used in oil and gas lease bidding. The only structural difference, in comparison to other bidding syndicates for securities, would be the extreme speed with which the deal must be put together.[6]

Impact on Corporate Finance

Shelf registration has not only changed the nature of investment banking, it has changed the manner in which chief financial officers (CFOs) of corporations must interact with investment bankers. The traditional advisor-client relationship is breaking down. In the emerging era of shelf registration, no longer can the CFO look to the investment banker as a member of the corporate team as he or she has done in the past. Historically, a corporation has had its own investment banking firm just as it has had its own law firm or public accounting firm. Long-standing relationships existed with Morgan Stanley, Goldman Sachs, First Boston, or other investment banking houses. Likewise, major-bracket investment banking houses took great pride in counting the number of "Fortune 500" companies in their stable.

In the traditional mode, the investment banker advised the corporate client about what type of securities should be issued, when they should be issued, and at what price. The investment banker also carefully considered the impact of the security issuance on the financial ratios of the firm and any potentially dilutive effect on earnings per share. An astute investment banker would further consider such matters as the impact of an acquisition or new product on the firm's image and its price-earnings ratio. In summary, the investment banker often represented the firm's intelligence gathering unit for the investment community.

With shelf registration the rules of the game are changing. It is up to the CFO to file the shelf registration statement and invite the investment bankers in for bidding. It is the responsibility of the CFO to determine what security to issue and when, and which bid to accept. Many traditional CFOs, with somewhat limited knowledge of financial markets, will have difficulty in operating in this environment. Inevitably, there will be a premium paid for the sophisticated CFO, who has perhaps even had investment banking experience. He or she will not only have strong financial management skills, but will be effective in bid management techniques and "instant" decision making on new securities issues. He or she must also be adaptive to new security devices that investment bankers are developing in the context of the highly competitive capital market environment.

As traditional investment banking relationships change, the CFO will supplant part of the investment banking role with fee-based services. While in the past an investment banker, sitting on a corporation's board and managing the

firm's underwritings, might have provided advice on private placements, mergers and acquisitions, and real estate financing, part of the same service will now be purchased on a fee basis.

Perhaps the best evidence of how old and new methods of doing business are being conducted can be found in a $100 million offering by Kerr-McGee Corp. in 1982.[7] The winning bids were shared by Morgan Stanley and First Boston. There was no problem with that except that two partners of another investment banking firm, Lehman Brothers Kuhn Loeb, sat on the Kerr-McGee Board (eventually Lehman was cut in for part of the deal). This type of vigorous competition simply was not in evidence in more traditional times when a monogamous relationship between the firm and its investment banker was the norm.

Shelf Registration and the Investor

The investor is also influenced by shelf registration. The hurry-up approach associated with shelf registration can make a mockery of the "due diligence" responsibility of the investment banker to the investor in a security offering. There is no way an instant deal can possess the same degree of scrutiny as a carefully supervised syndicated offering. As an example, Zale Corp. issued debt in 1982 at the very time they were facing an imminent decline in ratings of their bond issues. The offer was handled under the rapid fire procedures of shelf registration. If there had been the thorough investigative procedures traditionally associated with issuing debt, the potential downgrading may have come to the surface prior to or in conjunction with the new issue.

The watchword in shelf registration deals appears to be caveat emptor for the investor. At least that is the current situation. The procedure is still too new to have passed the challenge of lawsuits by unhappy stock- or bond-holders. If there were to be a major class action suit that was ruled in favor of the plaintiffs, operational procedures under shelf registration would no doubt be amended.

The absence to date of significant legal action or legislative challenge may be traced, in part, to the strong bond and stock market environment under which shelf registration was developed. Shelf registration was initiated in March 1982, only five months before the beginning of the great bull market of the 1980s. Investors tend to be much more tolerant of potential abuses when their pocketbooks are being enlarged than when purchases have gone sour.

Many investment banking houses that initially challenged the appropriateness of shelf registration because of due diligence concerns are now silent. In fact, some are currently among the leaders in putting shelf registration deals together. Whether they have been lulled into a false sense of security can only be viewed with the passage of time.

Investment bankers can take some solace in the fact that in most shelf registration bought-deals the initial purchasers in the distribution are institutional investors. The caveat emptor principle is perhaps more acceptable when large financial institutions are dealing with each other. The traditional syndicate arrangement is still the preferred method for moving securities to small individual investors, though shelf registration is making some inroads here as well.

Debt vs. Equity

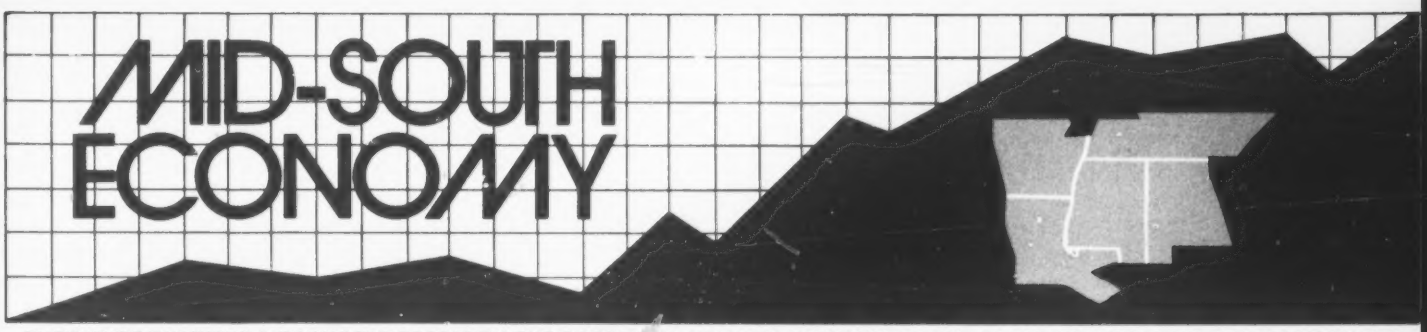
Shelf registration is much more heavily utilized in the debt sector of the market than in the equity sector.[8] A number of reasons can be offered for this. First of all, corporate issuers tend to be highly sensitive to the dilutive nature of new stock issues. For EPS-sensitive corporations, it's bad enough to have to issue new shares, but even worse to have to register a large volume of new shares which may or may not be issued over the next two years. Corporations are concerned that analysts may be computing the potentially dilutive effect even before the funds get to the corporation and can be redeployed for productive purposes.

Another reason why shelf registration is not as popular for equity issues is that issuing corporations generally wish to have their shares widely distributed. As previously mentioned, a shelf registration deal as opposed to a traditional syndicated offering often moves the securities from the investment banker directly into the hands of institutional investors. This, of course, does not provide the far-reaching network of distribution to individual investors that corporations frequently desire. An initial widespread distribution of securities has become particularly important in the recent time period of unfriendly takeover strategies. Corporations that have highly concentrated outside holdings of their securities are much more vulnerable to being a target for takeovers. A concentrated initial distribution of an equity issue can also lead to institutional dumping of large blocks of securities during market weakness, which can have an accentuated downside effect on the issue.

Bonds are also more amenable to the rapid fire action associated with shelf registration because of the established bond ratings procedures utilized by Moody's Investors Service, Inc., and Standard and Poor's Corporation. Although the ratings are not foolproof and there may even be lags in changing ratings to reflect economic circumstances, they do serve as a good initial measure in the evaluation and pricing of a security. A bond with an Aa2 rating, for example, can be assumed to have a certain degree of safety relative to a bond with a Baa2 rating. Investors are less willing to accept such shorthand methods of evaluation in the case of equity issues where exhaustive first-hand analysis may be the only acceptable mode of operation.

Overview

As previously described, a new way of doing business has come on to the corporate scene in the 1980s. While shelf registration is subject to further review before being continued indefinitely by the SEC,[9] the conventional wisdom is that shelf registration will be with us for the foreseeable future.[10] In fact, on November 11, 1983, the SEC voted continued support for the shelf registration procedure. The only exception was a provision that



BUREAU OF BUSINESS & ECONOMIC RESEARCH THE FOGELM .N COLLEGE OF BUSINESS AND ECONOMICS MEMPHIS STATE UNIVERSITY

STATISTICAL SUPPLEMENT

THE MID-SOUTH ECONOMY

The U.S. and Mid-South economies entered 1984 with strong momentum, continuing the pace set in the latter part of 1983. This rate of growth is, however, expected to moderate as the year progresses. From fourth quarter 1983 to fourth quarter 1984, the nation's real Gross National Product is projected to grow 4.1 percent. Consumers remain optimistic as the Conference Board's index of consumer sentiment registered its fifth consecutive gain in January 1984, increasing 39.8 points since last January's reading of 58.0 (1969-70 = 100.0). In addition, inflation is anticipated to remain moderate in 1984, reflecting the view that energy prices and labor costs will remain stable. However, continued upward pressures on interest rates caused by the federal deficit, bottlenecks in capacity-constrained industries, and record-setting international trade deficits could delay any meaningful gains in the nation's economic performance.

The Mid-South is poised to maintain the momentum of its economic upturn. The revival in residential construction has stimulated housing-related purchases of durable goods, while strong consumer spending in general has led to significant increases in purchases of non-durable goods. The Mid-South region in 1984 should feel the benefits from anticipated increases in business investment, higher defense spending (currently the value of shipments to the Department of Defense by Mid-South states exceeds $2.0 billion), and the expected increase in tourism resulting from the opening of the World's Fair in New Orleans. The U.S. Travel Data Center reports that the outlook for the U.S. travel industry is the brightest since 1976.

LABOR

The recovery in 1983 brought prospects for improvement in the region's labor markets. Across the Mid-South, total non-agricultural employment rose 2.6 percent from last January, while the number of unemployed persons declined 11.7 percent. The Mid-South's aggregate unadjusted unemployment rate stood at 11.4 percent for January 1984 versus the 13.2 percent rate registered a year earlier. Major metropolitan areas in the Mid-South experienced significant declines in unemployment with Birmingham, Alabama declining from 16.3 percent in January 1983 to 12.3 percent in January 1984. Jackson, Mississippi currently has the lowest metropolitan unemployment rate in the Mid-South at 6.8 percent. Significant declines in the region's unemployment rate are expected in 1984 because of slower growth in the civilian labor force and continued gains in real economic activity.

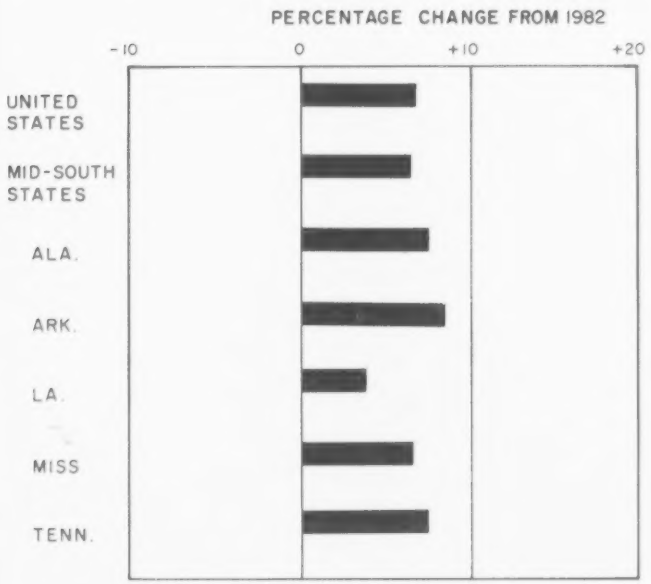
For Mid-South durable goods manufacturers, electric/electronic equipment registered the better gain in employment (employing 15,400 more workers than last January), followed by non-electrical machinery and furniture/fixtures. Mid-South manufacturers of apparel and rubber/plastics experienced the better gains from last January in the non-durable goods sector. On the non-manufacturing side, retail trade and service posted large gains, with government and finance, insurance, and real estate also registering healthy increases.

The nation's unemployment rate is anticipated to fall below 8.0 percent during 1984, with a projected unemployment rate of 7.4 percent by year's end. However, the current business recovery has affected various segments of the labor market in different ways. Industry-wise, January unemployment rates for construction, mining, lumber/wood products, primary metals, food/kindred products, and agricultural workers remain above 12.0 percent. And, while durable goods manufacturers managed to cut their unemployment almost in half, the non-durable goods manufacturing sector barely managed to fall below double digits.

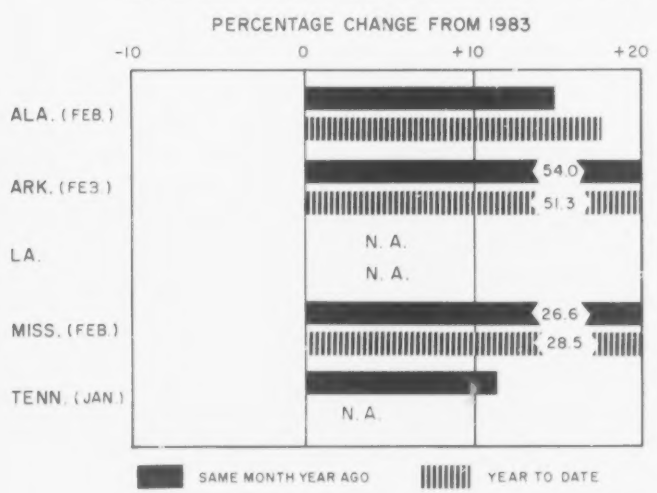
CONSTRUCTION

The construction industry entered 1984 at a high rate of activity. However, total new construction is expected to increase at a slower rate throughout the remainder of 1984 due to a leveling off in residential construction. Private non-residential construction activity is anticipated to be lower for the year as a whole. The Commerce Department's forecast of the dollar value of new construction put in place by sectors in 1984 indicates that office buildings will decline 5.0 percent, manufacturing will be off 2.0 percent,

PERSONAL INCOME - III QTR. 1983

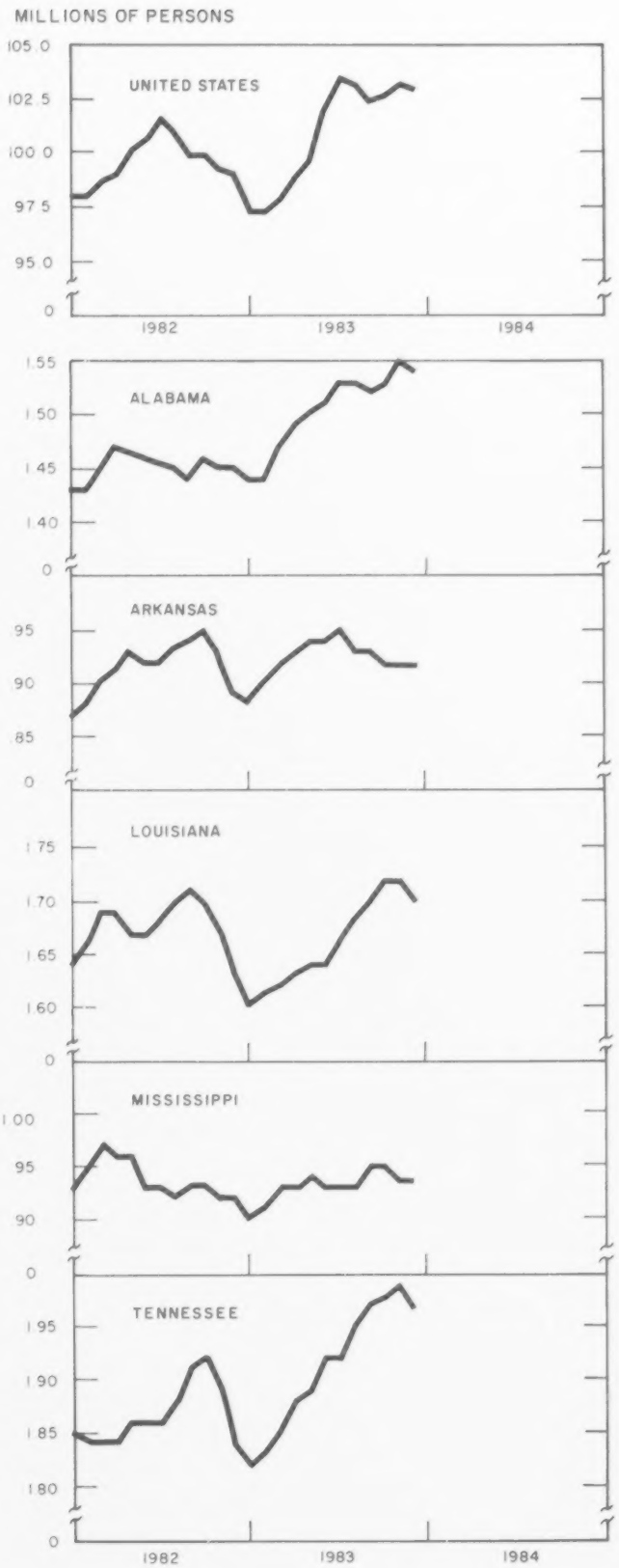


SALES TAX COLLECTIONS 1984

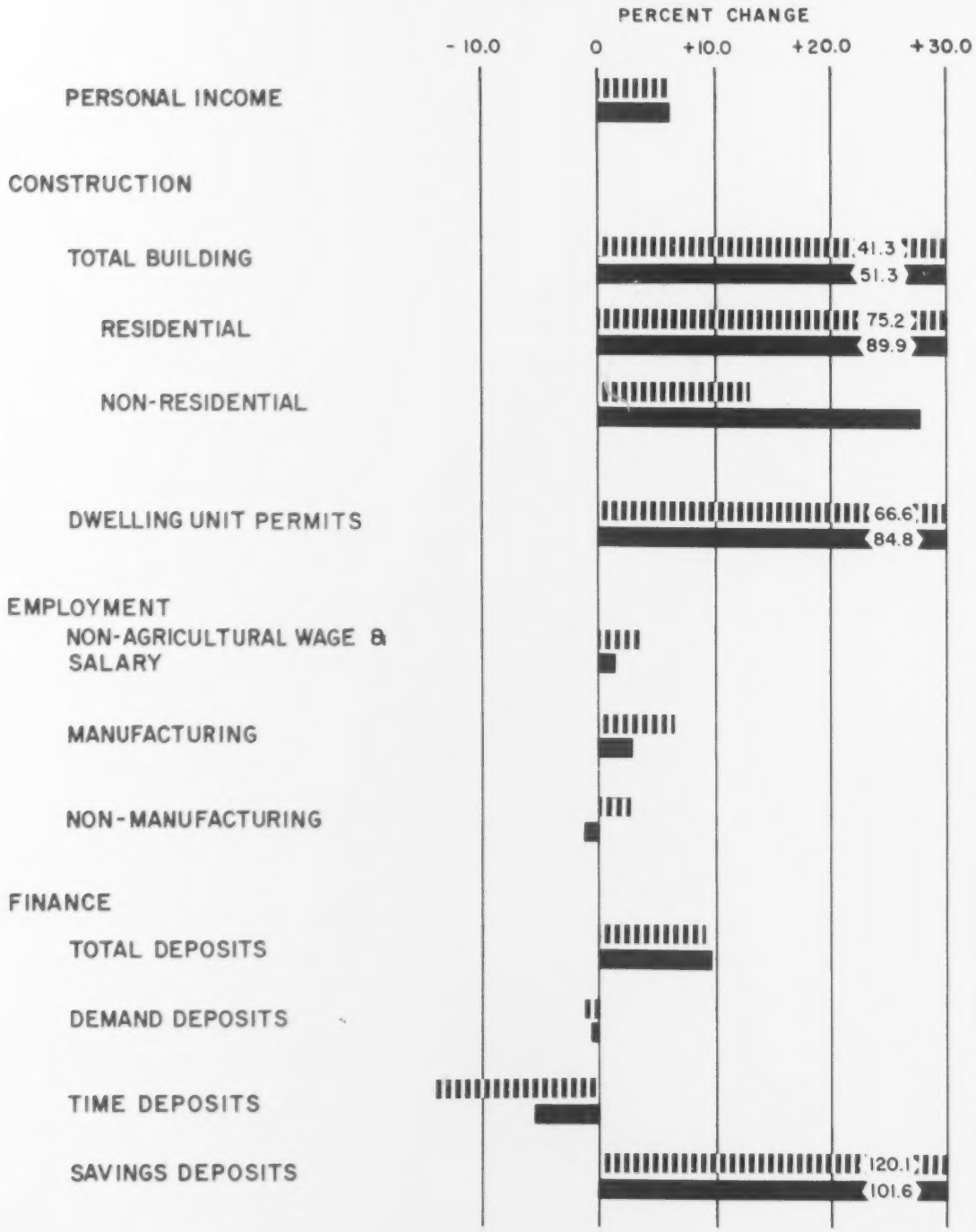


SOURCES: BUREAU OF ECONOMIC ANALYSIS
STATE DEPARTMENTS OF EMPLOYMENT SECURITY AND REVENUE.

TOTAL EMPLOYMENT



THE MID-SOUTH ECONOMY AND U.S. ECONOMY
1983 COMPARED WITH 1982



SOURCE: SURVEY OF CURRENT BUSINESS; FEDERAL RESERVE BANK OF ATLANTA; BUREAU OF ECONOMIC ANALYSIS; STATE EMPLOYMENT SERVICES.

Legend
UNITED STATES
MID-SOUTH

ANALYSIS OF ANNUAL CHANGES IN THE MID-SOUTH ECONOMY

For the U.S. and the Mid-South economies 1983 was a productive year. Optimistic consumers began to buy, and business responded with increased production. Constant dollar retail sales for 1983 were 6.5 percent higher than 1982 levels, and the index of industrial production for December 1983 was 16.1 percent higher than a year earlier. The nation's real Gross National Product advanced 6.1 percent for the year ending in the fourth quarter of 1983, exceeding the 5.0 percent average rate of recovery for the three previous recoveries. Continued dramatic improvements were made on the inflation front with a 1983 increase of 3.2 percent in the Consumer Price Index and a 1.8 percent rise in the Producer Price Index. Further evidence of a robust economy materialized in a 3.5 percent improvement in productivity and a capacity utilization rate of 79.8 in the fourth quarter of 1983.

The composition of the 1983 recovery, however, was somewhat different than during the three previous recoveries. While the growth of real personal consumption expenditures was on par with the first year of previous recoveries, the advance of real gross private domestic fixed investment was quite strong, primarily due to the residential sector. Real residential fixed investment from fourth quarter 1982 to fourth quarter 1983 rose 38.2 percent versus an average recovery rate of 22.6 percent, and real non-residential fixed investment rose 11.5 percent versus a 3.7 percent rate in previous recoveries. On the other hand, net exports (exports minus imports) showed a very large decline, as imports rose sharply and real government purchases fell 2.2 percent, primarily due to the operations of the Commodity Credit Corporation (CCC). Under the PIK program, farmers took title to an estimated $3.0 billion of crops previously held by the CCC. Excluding the CCC, real federal purchases in 1983 were up 4.5 percent, led by a 5.3 percent rise in defense spending. Interest rates held fairly steady in 1983 with the Treasury bill rate at 8.96 percent in December 1983 versus 8.01 percent a year earlier. The secondary market yields on Federal Home Administration mortgages were 13.25 percent for December 1983 versus 12.80 percent for December 1982.

For the Mid-South economy, sales tax collections, a proxy measure of retail sales, rose 6.1 percent in 1983 from 1982. For the first nine months of 1983 versus the same period in 1982, the growth in personal income in four of the five Mid-South states substantially outperformed the national increase of 5.8 percent. Louisiana trailed the Mid-South performance with a drop in sales tax collections and only a modest increase in personal income. Meanwhile, the unadjusted aggregate unemployment rate for the Mid-South stood at 9.5 in December 1983, 3.4 percentage points below the December 1982 level.

Table 1
1983 PERSONAL INCOME AND PERCENTAGE CHANGE FROM 1982

Area	Personal Income, First Nine Months, 1983 (Millions)	Percent Change From First Nine Months, 1982
United States	$2,001,030	+ 5.8
Mid-South Region	123,737	+ 5.9
Alabama	26,356	+ 7.3
Arkansas	15,377	+ 8.0
Louisiana	33,845	+ 4.6
Mississippi	15,458	+ 8.0
Tennessee	32,701	+ 6.7

Source: *Business Week*, February 27, 1984.

Table 2
1983 MID-SOUTH SALES TAX COLLECTIONS AND PERCENTAGE CHANGE FROM 1982

Area	1983 Collections (Thousands)	Percent Change From 1982
Mid-South States	$3,545,949	+ 6.1
Alabama	609,132	+ 8.4
Arkansas	399,632	+ 8.9
Louisiana[1]	610,000	- 7.2
Mississippi	701,747	+ 2.4
Tennessee	1,225,438	+ 7.1

[1]Collections thru October 1983.

Source: State Departments of Revenue.

The overall recovery in production in 1983 was translated into impressive improvements in the labor markets. Some 3.9 million workers were added to the nation's non-agricultural payrolls during 1983, while the Mid-South had 255,600 fewer people unemployed for the year. The most rapid gains for the nation were registered in durable goods manufacturing and construction, the sectors hit hardest during the recession. Automotive and textile employment also experienced substantial gains. For the Mid-South, solid gains were registered in retail trade and services, adding 35,700 jobs, and government, up 14,300. Machinery manufacturing also posted a gain of some 21,400 jobs. Tennessee and Arkansas registered their best gain in machinery manufacturing and services. Mississippi's best gains were concentrated in wood products and furniture, while Alabama's gains were in textiles and government employment. Louisiana's gains were concentrated in the non-manufacturing sector, with government and retail trade the best performers. The major losing categories across the Mid-South were chemicals and transportation equipment manufacturing. Overall for 1983, manufacturing employment in the Mid-South increased 2.7 percent or 37,300 jobs, while non-manufacturing declined 1.1 percent versus a 2.8 percent gain in the nation.

Table 3

LABOR, DECEMBER 1983, AND PERCENTAGE CHANGE FROM DECEMBER 1982

LABOR DECEMBER 1983	United States	Mid-South States				
		Alabama	Arkansas	Louisiana	Mississippi	Tennessee
Civilian Labor Force	111,795,000	1,763,100	989,400	1,899,000	1,026,700	2,199,300
Percent Change Year Ago	+ 1.2	+ 2.5	- 0.9	+ 2.4	- 2.3	+ 4.1
Unemployed	8,992,000	217,300	93,000	191,100	103,100	226,000
Percent Change Year Ago	-22.7	-18.6	-13.7	-11.3	-16.9	-16.0
Unemployment Rate						
1983	8.0	12.3	9.4	10.1	10.0	10.3
1982	10.5	15.5	10.8	11.6	11.8	12.7
Non-Agricultural Wage & Salary Employees	92,289,000	1,326,300	753,900	1,594,800	800,800	1,713,500
Percent Change Year Ago	+ 3.3	+ 1.2	+ 4.8	- 0.8	+ 0.9	+ 2.7
Manufacturing Employment	19,271,000*	334,600	205,900	190,300	207,500	482,500
Percent Change Year Ago	+ 5.9	+ 2.8	+ 7.9	- 4.4	+ 4.9	+ 5.7
Non-Manufacturing Employment	72,373,000*	991,700	548,000	1,404,500	593,300	1,231,000
Percent Change Year Ago	+ 2.7	+ 0.7	+ 3.6	- 0.3	- 0.4	+ 1.6
Average Weekly Earnings of Production Workers in Manufacturing	$372.86	$321.98	$294.67	$394.18	$289.67	$ 313.18
Percent Change Year Ago	+ 8.2	+ 9.4	+ 7.6	- 1.8	+10.6	+ 6.2
Average Weekly Hours of Production Workers in Manufacturing	41.2	41.6	40.7	40.1	41.5	41.1
Percent Change Year Ago	+ 3.8	+ 5.1	+ 2.5	- 6.1	+ 3.5	+ 3.3
Average Hourly Earnings of Production Workers in Manufacturing	$ 9.05	$ 7.74	$ 7.24	$ 9.83	$ 6.98	$ 7.62
Percent Change Year Ago	+ 4.3	+ 4.2	+ 4.9	+ 4.6	+ 6.9	+ 2.8

*Seasonally adjusted.

Source: Departments of Employment Security and Survey of Current Business.

Total new construction activity increased sharply in 1983 after several years of stagnation. For the period ending in November 1983, total building activity in the U.S. rose 41.3 percent compared to the same period in 1982. For the Mid-South (excluding Arkansas), total building activity totaled $5.5 billion, a rise of 51.3 percent. Much of this turnaround was due to a dramatic rise in residential construction, up 75.2 percent in the nation versus an 89.9 percent increase in the Mid-South. The total number of permit-issued housing units rose 66.6 percent in the nation versus 84.8 percent in the Mid-South.

The Mid-South states (excluding Arkansas) also outperformed the nation in the non-residential sector with an increase of 27.8 percent versus a 12.9 percent rise in the nation. The best gains were registered in hospitals and schools, up 103.2 and 95.7 percent, respectively, versus

Table 4

PERCENTAGE CHANGE IN BUILDING ACTIVITY FOR 1983 COMPARED TO 1982

CONSTRUCTION[1] NOVEMBER 1983	United States	Alabama	Arkansas	Louisiana	Mississippi	Tennessee
Total Building						
Percent Change Year Ago	+41.3	+52.5	N.A.	+45.4	+54.9	+ 57.9
Residential Building						
Percent Change Year Ago	+75.2	+79.7	N.A.	+70.1	+89.8	+123.6
Non-Residential Building[2]						
Percent Change Year Ago	+12.9	+36.5	N.A.	+28.5	+17.8	+ 24.0
Total Dwelling Units						
Percent Change Year Ago	+66.6	+76.4	N.A.	+76.7	+77.8	+103.5

[1]Twelve-month cumulative rate.

[2]Non-residential data exclude the cost of construction for publicly-owned buildings.

Source: The Federal Reserve Bank of Atlanta from data supplied by the Bureau of Census.

respective gains of 18.8 and 9.5 percent in the nation. Office building construction totaled $593 million, a gain of 23.5 percent versus a national increase of only 6.8 percent. However, store and industrial building construction underperformed the nation, with store building increasing 19.0 percent versus the national rate of 35.9 percent. Industrial building construction fell 39.6 percent in the Mid-South versus a modest national increase of 5.5 percent.

The revival in consumers' financial positions and in the construction industry made its mark on the financial sector in 1983. Total personal savings nationwide in 1983 were $7.5 billion higher than in 1982. Savings deposits at commercial banks and savings and loans throughout the country rose 120.0 and 73.0 percent, respectively. Net savings flows at Mid-South savings and loan institutions were nearly double their levels of a year ago, and savings deposits at Mid-South commercial banks were 101.6 percent higher than a year earlier. Mortgage loans made by Mid-South savings and loans totaled $6.0 billion in 1983 versus $2.1 billion in 1982, an increase of 185.7 percent, reflecting a much improved residential construction sector in the Mid-South.

Table 5

1983 SAVINGS AND LOAN ACTIVITY AND PERCENTAGE CHANGES FROM 1982

SAVINGS AND LOAN ACTIVITY	Alabama	Arkansas	Louisiana	Mississippi	Tennessee[1]
Mortgage Loans Made (millions)	$831.5	$2,026.1	$2,048.3	$362.5	$774.3
Percent Change Year Ago	+271.5	+254.7	+130.6	+160.8	+150.6
Net Savings Flow (millions)[2]	$663.4	$1,446.6	$2,028.0	$287.0	$687.1
Percent Change Year Ago	+343.4	+354.6	+102.0	+157.6	+253.2

[1]Figures are for total loans made.

[2]Net savings flow equals new savings received plus dividends credited minus savings withdrawn.

Source: Federal Home Loan Banks of Little Rock, Cincinnati, and Atlanta.

Table 6

BANKING: MEMBER BANKS AS OF 12/7/83: PERCENTAGE CHANGES FROM COMPARABLE 1982 PERIOD

FINANCE	United States	Mid-South States	Alabama	Arkansas	Louisiana	Mississippi	Tennessee
Total Deposits	+ 9.0	+ 9.6	+ 8.3	+15.3	+ 9.0	+ 9.0	+ 10.0
Demand Deposits	- 1.0	- 0.8	+ 3.0	- 1.6	- 2.0	- 1.0	- 2.0
Time Deposits	- 14.0	- 5.7	- 8.0	+21.8	- 8.0	- 9.0	- 9.0
Savings Deposits	+120.0	+101.6	+95.0	+18.5	+115.0	+201.1	+125.0

Source: The Federal Reserve Bank of St. Louis and the Federal Reserve Bank of Atlanta.

commercial buildings will be up 12.0 percent, and private hospitals will increase 10.0 percent. On the residential side, single-family units are projected to rise 5.0 percent, with multi-family units increasing 10.0 percent.

The construction industry led other sectors of the Mid-South economy in recovery from the recession. For the twelve months ending December 1983 versus the comparable 1982 period, Mid-South (excluding Arkansas) total building activity increased 47.9 percent, outperforming the national increase of 39.7 percent. Total Mid-South construction employment stood at 304,800 in January 1984, an increase of 20,400 from last January or 7.2 percent, closely matching the national increase of 7.3 percent.

FINANCE

The nation's credit and capital markets are likely to see another and more significant test during 1984. The economy has moved from a recovery phase to the potential for full-scale expansion accompanied by increased demands for capital and credit from businesses and consumers.

Already in the first quarter of 1984 short-term private credit demands are approaching unprecedented levels. Business loans at weekly reporting banks rose $4.6 billion in the first quarter, a rate of borrowing exceeding levels for the first quarter of any recent year. Additionally, the U.S. League of Savings Institutions reported that mortgage lending at savings institutions totaled $11.8 billion in January, a record for the month. Such accelerated growth in borrowing will directly affect the ability of the Federal Reserve to supply funds to the private sector and limit their policy choices for the remainder of 1984.

Total deposits at Mid-South commercial banks were 7.4 percent higher than last January's level but underperformed the national increase of 8.4 percent. Demand deposit growth was a modest 1.6 percent compared to a 5.2 percent increase in the nation. However, the decline in time deposits was below the national rate, while savings deposits rose 68.0 percent versus a 59.3 percent increase in the nation.

LABOR	United States (December)	Mid-South States: Alabama (January)	Arkansas (January)	Louisiana (January)	Mississippi (January)	Tennessee (January)
Civilian Labor Force	111,795,000	1,752,700	1,009,200	1,888,600	1,023,900	2,300,100
Percent Change Year Ago	+ 1.2	+ 1.6	+ 1.5	+ 2.0	- 2.4	+ 4.0
Unemployed	8,992,000	236,300	108,400	197,000	112,200	243,500
Percent Change Year Ago	-22.7	-17.6	-15.6	-14.4	-23.9	-17.4
Unemployment Rate						
1984	8.0	13.5	10.7	10.4	11.0	11.1
1983	10.5	16.6	12.9	12.4	14.1	13.9
Non-Agricultural Wage & Salary Employees	92,289,000	1,324,400	750,900	1,560,300	793,000	1,746,800
Percent Change Year Ago	+ 3.3	+ 3.2	+ 6.1	+ 0.6	+ 3.0	+ 5.2
Manufacturing Employment	19,271,000*	344,300	204,900	176,000	209,700	483,000
Percent Change Year Ago	+ 5.9	+ 6.3	+ 9.1	- 3.7	+ 8.4	+ 7.3
Non-Manufacturing Employment	72,373,000*	980,100	546,000	1,384,300	583,300	1,263,800
Percent Change Year Ago	+ 2.7	+ 2.2	+ 5.1	+ 1.2	+ 1.3	+ 4.4
Average Weekly Earnings of Production Workers in Manufacturing	$372.86	$329.25	$297.52	$417.31	$279.16	$311.25
Percent Change Year Ago	+ 8.2	+ 8.4	+ 9.7	+ 6.6	+ 8.8	+ 6.4
Average Weekly Hours of Production Workers in Manufacturing	41.2	40.9	40.7	41.4	40.4	40.9
Percent Change Year Ago	+ 3.8	+ 3.8	+ 3.8	+ 3.2	+ 3.6	+ 3.0
Average Hourly Earnings of Production Workers in Manufacturing	$9.05	$7.83	$7.31	$10.08	$6.91	$7.61
Percent Change Year Ago	+ 4.3	+ 4.4	+ 5.6	+ 5.3	+ 5.0	+ 3.3

*Seasonally adjusted.

Source: Departments of Employment Security and Survey of Current Business.

CONSTRUCTION[1] (December 1983)	United States	Alabama	Arkansas	Louisiana	Mississippi	Tennessee
Total Building						
Percent Change Year Ago	+39.7	+50.2	N.A.	+39.9	+47.5	+ 58.3
Residential Building						
Percent Change Year Ago	+71.1	+81.6	N.A.	+67.6	+72.4	+122.3
Non-Residential Building[2]						
Percent Change Year Ago	+12.4	+31.8	N.A.	+21.5	+19.4	+ 24.4
Total Dwelling Unit						
Percent Change Year Ago	+61.4	+73.9	N.A.	+72.9	+66.7	+108.9

[1]Twelve-month cumulative rate.

[2]Non-residential data exclude the cost of construction for publicly-owned buildings.

Source: The Federal Reserve Bank of Atlanta from data supplied by the Bureau of Census.

FINANCE (January 1984)	United States	Mid-South States	Alabama	Arkansas	Louisiana	Mississippi	Tennessee
Member Banks as of Percent Change from Comparable Date January 4, 1983							
Total Deposits	+ 8.4	+ 7.4	+ 6.8	N.A.	+ 6.4	+ 8.1	+ 8.7
Demand Deposits	+ 5.2	+ 1.6	+ 5.4	N.A.	- 1.4	+ 2.2	+ 2.4
Time Deposits	- 6.6	- 5.4	- 4.1	N.A.	- 5.2	- 6.8	- 5.8
Savings Deposits	+59.3	+68.0	+54.3	N.A.	+71.1	+104.0	+60.1

Source: The Federal Reserve Bank of St. Louis and the Federal Reserve Bank of Atlanta.

SAVINGS AND LOAN ACTIVITY	Alabama (January)	Arkansas (December)	Louisiana (December)	Mississippi (December)	Tennessee[1] (January)
Mortgage Loans Made (millions)	$41.0	$147.9	$205.8	$ 33.9	$50.3
Percent Change Year Ago	+80.6	+ 38.7	+ 28.5	- 0.6	+ 5.9
Percent Change Year-to-Date	N.A.	+254.7	+130.6	+160.8	N.A.
Net Savings Flow (millions)[2]	$25.5	$113.2	$188.1	$ 12.1	$31.2
Percent Change Year Ago	-64.6	- 44.7	- 19.4	- 36.7	-80.6
Percent Change Year-to-Date	N.A.	+354.6	+102.0	+157.6	N.A.

[1]Figures are for total loans made.

[2]Net savings flow equals new savings received plus dividends credited minus savings withdrawn.

Source: Federal Home Loan Banks of Little Rock, Cincinnati, and Atlanta.

TENNESSEE ECONOMY

Tennessee's economy ended 1983 with strong momentum. Retail sales were 14.0 percent higher in fourth quarter 1983 than in fourth quarter 1982. Total personal income rose 7.4 percent from third quarter 1982 to third quarter 1983, outperforming the national increase of 6.6 percent. For the year as a whole, sales tax collections were up 7.1 percent, the dollar value of permits for residential construction had doubled, and the Tennessee Department of Economic and Community Development reported a total of $1.5 billion in new projects and expansions undertaken during the year. Tennessee's economy also experienced renewed strength in new incorporations and a decline in the number of bankruptcies.

Data for January 1984 show the momentum continuing. Sales tax collections remain robust, up 11.0 percent from last January. Total non-agricultural employment rose 5.2 percent from a year ago, or approximately 86,100 jobs. Manufacturing employment experienced a healthy gain of 7.3 percent, with all categories of durable goods production registering positive gains. Strong gains in non-durable goods employment were registered in textiles/apparel and printing/publishing. On the non-manufacturing side, solid gains were registered in construction, retail trade, and service employment. Government employment managed a healthy increase of 3,800 jobs from a year earlier. Overall, the total number of person unemployed declined 17.4 percent, with the unadjusted unemployment rate at 11.1 percent, a drop of 2.8 percentage points from last January. All the metropolitan areas of the state experienced declines in their unemployment rates with Nashville the better performer, falling from 10.0 percent last January to the current rate of 7.3 percent. However, thirteen counties continued to experience unemployment rates above 20.0 percent, while only six counties were at 8.0 percent or less.

Total deposits at Tennessee's commercial banks in January 1984 increased 8.7 percent from a year ago, outperforming the national increase of 8.4 percent. Credit union share drafts were up 31.3 percent, and savings and loan deposits rose 32.4 percent above their levels of a year ago. Savings and time deposits across the state increased 5.7 percent from last January. Total loans at Tennessee's savings and loan institutions rose a modest 5.9 percent from a year earlier, while net savings flow continued a strong pace, up 80.6 percent from last January. In addition, the assets of Tennessee's bank holding companies in 1983 were 23.5 percent above their 1982 levels.

Tennessee's index for prices received for all farm products in January 1984 stood at 136.0 of its 1977 = 100.0 level, an increase of 8.8 percent from a year earlier, while the prices paid for agricultural commodities and services, as measured on the national level, rose a moderate 3.8 percent. The recently released *1982 Census of Agriculture* by the Bureau of Census shows Tennessee with 90,568 farms averaging 138 acres per farm. The average value of land, buildings, and equipment was $160,017. In addition, 407 farms were owned by corporations, with 6,079 farms listed as being operated by women.

stipulated that small firms, having less than $150 million in stock held by investors unaffiliated with the company, could not utilize shelf registration procedures.[11] The Commission felt that their smaller size did not justify the need for placing large volumes of securities on the shelf. These smaller companies represent an insignificant part of the shelf registration market.

Shelf registration offers many of the benefits often associated with deregulation. All of the parties involved in the issuance of securities will have to become more effective in the performance of their jobs. This includes investment bankers, corporate financial officers, and institutional investors.

Issuing corporations will be able to move much more quickly to take advantage of an open window in the financial markets. This is particularly important in the highly volatile economic environment of the 1980s.

The counter argument against shelf registration is that the protective nature of the securities legislation of the 1930s is under challenge. The concept of due diligence takes on much less meaning when instant deals are being put together. In this area, the courts may still have something to say.

Ultimately, it will be up to the public and the SEC to determine whether we have lunged forward into more effective ways of doing business in the 1980s or regressed to many of the abuses that preceded the market crash and legislation of the 1930s.

FOOTNOTES

[1]Beth McGoldrick, "Life with Rule 415," *Institutional Investor*, Vol. 17 (February 1983), p. 129.

[2]Ibid., p. 133.

[3]Tim Carrington, "Morgan Stanley, as Lead Manager, Led in Dollar Value of 82 U.S. Underwritings," *The Wall Street Journal* (January 11, 1983), p. 42.

[4]McGoldrick, p. 131.

[5]"Christening Shelf Registration," *Institutional Investor*, Vol. 17 (January 1983), p. 90.

[6]Interview with H. Frederick Krimendahl II, partner, Goldman Sachs, November 25, 1983.

[7]Richard L. Stern, "Lions Want Lion's Share," *Forbes* (November 22, 1982), p. 44.

[8]McGoldrick, p. 129.

[9]*Annual Report of the Securities and Exchange Commission* (Washington, D.C.: U.S. Government Printing Office, 1982).

[10]"SEC Renews Debate Over Use of Shelf Filings," *The Wall Street Journal* (June 10, 1983), p. 12.

[11]Richard L. Hudson, "SEC Votes to Curb Shelf Registrations by Barring Their Use by Smaller Firms," *The Wall Street Journal* (November 12, 1983), p. 2.

MANAGING AN R & D UNIT

*Martin R. Moser**

There always has been a great deal of controversy surrounding the who, what, where, why, when, and how of research and development (R & D) management. According to one point of view[1] which was very popular during the fifties, the best way to manage a research team is to hire a good person and leave him free to produce new knowledge that will eventually be profitable to the firm. This theory has led to the establishment of some central research laboratories directed by distinguished scientists who were left essentially to their own devices.

According to another view,[2] the process of research and development is similar to the other major functions of a firm and, like them, should be subject to rational management.

In recent years there has been some disillusionment with both points of view. Experience has shown that it is not enough simply to hire good people and let them work independently; this approach is apt to result primarily in scientific papers and little else. The second view has important shortcomings too, for unless management recognizes the uncertainties that confront the researcher and the need for innovative solutions to problems, it may try to manage projects in too much detail and with too little flexibility. The job of putting research and new technology to work for corporate goals is a difficult one and may require modifying both the goals and the style of the firm.

Although all management functions must cope with uncertainty, R & D is generally agreed to be the one function involving the largest number and widest range of uncertainties. The R & D manager faces huge problems not only in selecting the most promising avenues for R & D effort and expenditure, but also in attempting to ensure a steady flow of technically feasible projects.

The lengthening time scale of R & D work exacerbates the uncertainty and complexity of this management effort. Today, frequently five to ten years or more may be required to achieve technical success and an additional five to eight years may be necessary to realize full commercial potential.[3]

The Manager's Role in R & D

What is meant by the managerial role in R & D? According to Hower and Orth,[4] the R & D manager must "see that plans are made, that programs are formulated, that proper personnel are recruited, organized, and suitably administered, that activities and resources are coordinated, results evaluated, and so on. This means that administrators, supervisors, executives (call them what you will) are those responsible for seeing that the 'work gets done' rather than directly doing it themselves."

Mueller[5] claims that the C.E.O. holds the key to the R & D management process: for it to succeed, he must be committed to innovation. Of course, parameters must be established for projected new endeavors, but there must also be opportunity for innovations of the serendipitous variety. No real guidelines can be set for these, other than the general principle that the corporate attitude should be sympathetic to nonconformists and divergent thinking.

There is no question of the importance of management's role in successful R & D. But what are the various dimensions of this role? In an attempt to answer this question Margerison[6] formulated questions about specific R & D group composition.

What sort of group are you managing? Let us assume that the members of the group share the same organizational goals even though they may differ over the means to the goals. Is the group homogeneous or heterogeneous? Are the members alike in the way they work, their skills, their background, their ideas, and their approach to the job? If so, then the group could benefit from "a supervisor who stresses innovation, rejects established approaches, offsets pressures toward conformity, and provides original ideas and new types of solving problems."

On the other hand, with a group who is enthusiastic, innovative, and resourceful, the supervisor needs to play a different role. Here he should be more of the catalyst promoting cooperation, encouraging, facilitating the exchange of ideas, helping resolve differences of views, and generally acting as a source point for communication.

Margerison claims that the manager is the key person in innovative groups. He needs to encourage the group to exchange technical information and help each other think through their technical problems, and he should be an active part of the process himself.

What does the manager do to motivate his staff? There has been considerable research to establish what, if any, are the best managerial styles. The answer has come back that it all depends on the type of situation, the technology, and the sort of people with whom you are working. There is no one style to suit all conditions.

**The author is Assistant Professor of Management, Clark University, Worcester, Massachusetts.*

What can the manager do to motivate his team? First, he must get the conditions of service right. It is unlikely that a member of the staff will give his best or produce best, for example, if he is worried about his level of pay, concerned about his pension, or dissatified with the physical conditions. Factors of this sort have been referred to by Hertzberg as the "hygiene" factors. According to Hertzberg, their resolution won't necessarily motivate people, but they are essential preconditions for those factors that do, such as the desire for achievement-recognition, responsibility, advancement and personal growth, as well as the challenge of the work itself. While there is a lot of argument with Hertzberg's two-factor theory, its point is reasonably well accepted. After that there are differences of emphasis.

However, other theorists such as Vroom and Lawler stress the importance of the individual's needs and expectations. They argue that motivation is a function of a person who is interested in specific goals, who believes he can achieve them, and who expects that, when he succeeds, the results will be of some use or value and that he will be rewarded. In short, motivation depends on a person's needs and his belief about the outcome of his effort.

Mansfield[7] notes that there are two sides to the role played by a firm's highest research administrators. They must guide the research in directions that are useful to the organization and at the same time represent the scientists' interests to top management.

At lower levels in the organization a central problem of supervisors is to decide how tight their supervision should be. A study of twenty laboratories of the National Institutes of Health identified three kinds of supervision: "participatory" (high rate of interaction and joint decision between supervisor and researcher), "directive" (low rate of interaction and unilateral decision-making by supervisor), and "laissez faire" (low rate of interaction and little decision making by supervisor). According to the study, research performance was the highest for participatory supervision, intermediate for laissez faire supervision, and lowest for directive supervision.

Frohman[8] outlined five managerial roles in the administrative process of planning, controlling, and appraising R & D:

Gatekeeping: Collecting and channeling information about change in the internal and external environments. Gatekeepers stay abreast of events in their respective environments through personal contacts primarily and through formal media secondarily.

Idea Generating: Analyzing information about technologies, approaches, and procedures and generating new technical ideas, approaches, and/or procedures.

Championing: Recognizing, pursuing, and demonstrating new technical ideas, approaches, and/or procedures for formal management approval.

Project Leading: Integrating and coordinating the diverse sets of tasks and people involved in moving a demonstrated idea into practice.

Coaching: Guiding and developing the less experienced personnel (a big brother/sister role).

Survey findings indicate that individuals tend to be able to perform one or two of the managerial roles well, rather than all equally well. Which role a person performs better than others depends on his experience, skills, and personality characteristics.

The perception of what type of behavior gets rewarded tends to influence which roles are emphasized. Some organizations reward mainly tangible outputs, such as problems solved, new designs, hardware built, and so forth. As a result, less effort than may be desirable tends to be invested in the roles that do not produce tangible results. Frohman claims that top management should insure that the range of behavior recognized and rewarded covers all of the managerial roles, including, for example, effective gatekeeping and coaching, which do not produce direct tangible results.

The administration and control of research and development tends to be looser and more informal than in most other areas of industry. Although there may exist a rather formidable control structure, many of the decisions tend to be made quite informally.

Management Control

According to Clutterback,[9] R & D has traditionally escaped many of the management controls imposed on other corporate functions because of the supposed difficulty of applying them in a creative environment. The atmosphere, however, is changing. Companies are attempting to draw R & D much more into the mainstream of corporate activities by designing productivity and control procedures specifically tailored for their research departments.

The reason is the escalating cost of R & D. Although some considerable increases in productivity in the laboratory have been brought about by the introduction of computers, research remains highly labor-intensive. One estimate, for example, puts salary expenditures on research and support personnel at nearly 60.0 percent of total R & D spending in the U.S. chemicals, instrument, and car manufacturing industries.

The need to meet rigorous government health and environmental requirements is another strain on research resources.

The introduction of management controls into R & D, however, does not have a happy history. A study[10] of R & D productivity at the Hughes Aircraft Company suggests that efforts of research departments to establish management by objectives (MBO), a system in which subordinates agree to goals with their superiors and performance is monitored at regular review sessions, have frequently failed.

One company that has combined managerial control of R & D with successful product innovation is Dexter Corporation. One of the most important R & D control mechanisms Dexter has introduced is its "innovation index."[11] Developed by Glaser, the index is a way of assessing whether a project will succeed, and if not, where its faults are.

Glaser devised the index after analyzing a large number of Dexter's past research projects to isolate common causes of success or failure. He found eight major factors. To each he assigned a numerical weighting. Together, the weightings equal one hundred.

At regular intervals during a research project either Glaser or the responsible divisional head of R & D scores the project on each of the eight factors. If the score is well above 70, the project is almost certain to succeed. If it is much below, it is abandoned or remedial action taken. Glaser's eight factors are as follows:

1. Scientific and technical competence (maximum value 20 points). Are the research workers both adequately skilled and well motivated? Do they have a record of good innovation?
2. Effective communication (maximum value 20 points). Are the technical and marketing people who are working on the project cooperating? Do they understand each other's problems? Are the technical people in constant contact with the customer?
3. Presence of a "champion" (maximum value 15 points). Is there a senior manager who will help push the project through against any opposition or difficulties?
4. Does the project fulfill a real market opportunity? (maximum value 15 points)
5. Is there a real opportunity for technical innovation? (maximum value 10 points)
6. Top management interest (maximum value 10 points). Is the company sufficiently committed to the project to provide it with the resources it needs?
7. Competition (maximum value 5 points). Are the competitors working on similar projects of their own? Competition can be a spur. The tougher it is, the higher the score.
8. Timing (maximum value 5 points). How much lead time can be gained over competitors? Is the market ready for the product?

Dexter's innovation index, however, is concerned only with monitoring existing projects that have already been sanctioned by senior management. It cannot help in assessing a company's overall R & D effort.

Balachandra and Raelin[12] have developed a method of predicting project success in high-tech industries. These researchers have developed a procedure which consists of responding yes/no to a series of twelve questions. The higher the number of "yes" responses received by a project, the greater the likelihood of its being successfully completed. The twelve questions are:

1. Are new products introduced in this line fairly regularly (once in six months or less)?
2. Is the estimated completion time longer than two years?
3. Is the product in the growth phase of its life cycle?
4. Is the probability of successfully completing the project increased in the last month?
5. Is the technological route well understood?
6. Is there a high degree of association between the commercial and technical aspects of the project?
7. Are the cost schedules met at least 80.0 percent of the time?
8. Is the number of alternative end uses for the product becoming smaller?
9. Is there an increase in internal competition for resources of the project?
10. Is there an increase in commitment of project workers?
11. Has the project manager been effective in handling the project?
12. Has the top management support of the project increased?

According to Balachandra and Raelin, if a project receives more than nine "yes" responses, it should be continued unless there is some major unseen factor. For scores between six and nine a review is called for. Projects with scores less than six need an intense review and possible termination.

In research, but not development, it is generally believed that administrators should resist the temptation to manage projects in much detail. Management's job should be limited to providing general guidelines and goals, selecting capable persons, and providing a climate conducive to good work. This does not mean that management does not—and should not—guide research. Whereas over-management of research is likely to lead to technical hack work, totally unguided research is likely to lead to waste and frustration. A balance must be achieved. Management must learn to guide research in the directions most likely to contribute to company goals, yet not constrain it so that it produces excessively narrow and short-range work. Moreover, each company must decide, in the light of expected scientific and commercial development, the scientific areas where it will concentrate its efforts, those where it will merely keep in touch with the scientific community, and those where it will virtually ignore developing knowledge.

The Tension Between the Manager and the Scientist

Management is interested in speedy, low-cost production of a marketable product but is often uncertain how to communicate to its research scientists its need for essentially applied rather than theoretical research. On the other hand, the scientist often fails to persuade management that his research should not be cut, and that his work cannot be subjected to the same type of cost-effectiveness studies and manufacturing standards as are applicable to production departments.

The tension that may arise between the traditions and values of management on the one hand and science on the other has received considerable attention. The scientist comes from a tradition where he is privileged to choose his own topics of work, the objective is new knowledge, and his performance is evaluated by his peers and colleagues in science. On the other hand, management operates in a tradition of passing on, specifying, and executing decisions made by others, the objective is to make money, and evaluation is done by hierarchical superiors.

McLeod[13] notes that this issue of basic versus applied research expresses the underlying communication problem between professional scientists on the one hand and business or industrial management on the other. Professional science favors contributions to knowledge, per se, not to profits; high-quality research rather than low-cost research; long-range planning rather than short-term results. These characteristic values may be seen to have their origin in the academic atmosphere where scientists are trained. Most of the very best scientific researchers are products of those universities which, because of their large endowments and continuous governmental funding, have long funded research of no apparent immediate application. One might even suggest that it is this environmental background that has caused the scientist's communication problem, for it has given him expectations that are not likely to be met in the ordinary industrial laboratory or in the business milieu, and it has ill-equipped him to communicate these expectations to management.

The academic institution traditionally provides an atmosphere of free inquiry and fosters dedication to the pursuit of knowledge for its own sake. The scientist who enters industry finds little of this freedom. He may have been led to expect that his relationship to management would be that of a colleague rather than of any employee, but once he is hired, he begins to appreciate the delicacy of this role. An acculturation process takes place as the laboratory and the recruited scientist learn from each other and change each other. Some people believe that the laboratory effects more change in the scientist than vice versa.

There is little doubt that scientists in business and industry realize that certain character traits, such as originality, imagination, freedom of expression, and intellectual stimulation which the university-oriented scientist maintains as part of his value system, are discouraged in the corporate community. The extent of professional frustration among these scientists is revealed in a study by the Opinion Research Corporation[14] of 600 scientists and research engineers in six large firms. Only 34.0 percent reported that they were "very well satisfied." The most frequent case of job dissatisfaction was that "special competencies were not utilized." That is, there was a distinct feeling that the corporate scientist was not fully accepted as a bona fide contributor to the corporate well being.

According to Mansfield,[15] top management's ultimate control over the scope, emphasis, and efficiency of research lies largely in the selection of key personnel. It is the responsibility of management to decide in what broad fields to do research, and then to staff the program accordingly. Within these fields, they should rely heavily on the judgment of researchers to select specific inquiries and particular approaches to problems.

Mansfield claims that top management should play a more dominant role in development, partly because there is less uncertainty than during the research process. Management can define the problems and goals of development more closely and can achieve a better correlation between resources utilized and ultimate results. In addition, management must concern itself with the cost of development. If a project proceeds beyond the exploratory stages, its costs begin to increase considerably. Moving from a design study to the later stages of development work typically involves greater labor requirements for working out and testing the details of the design. Testing the full system can involve considerable expense, particularly when the production of test items requires many special tools and buildings.

He notes that although the management of research and development is far from a science, and that few propositions are testable, and practically none are tested in any formal way, some worthwhile observations appear in the literature:

1. A company's research aims should be clearly spelled out and communicated to the scientists, and its research should be undertaken in broad areas relevant to its economic goals. If one simply hires teams of scientists and allows them to do research in their favorite fields, their results may be novel and interesting but they are unlikely to have much more commercial value to the company. There is a much greater chance of obtaining commercially useful results if the firm's research aims are specified and researchers are hired who offer a good match, as to both qualifications and interests, with these aims. It is surprising how frequently firms seem to lose sight of this seemingly obvious point.
2. Top management's responsibilities do not end with the definition of the objectives of research and development. Management must also make sure that its organization performs critical planning functions. Research and development should be responsive to technological knowledge flowing from three sources: the company's competitors, the company's present and prospective customers, and the scientific community in general. Despite the difficulties in technological forecasting, the firm must try to forecast, as best it can, the new developments that will come from these sources. Some firms make rather informal forecasts, while others have developed formal procedures to forecast technological threats and opportunities.
3. Management must pay proper attention to the transfer of new technology into operations. This is sometimes an extremely difficult task. On the one hand, this transfer may be restricted because the researcher does not recognize the commercial implications of his work or will not release his findings until he has covered all of his scientific ramifications. On the other hand, operating groups sometimes resist new technology on the ground that it is impractical or because, although it is desirable in the long run, it will add to their short-term marketing or engineering costs.
4. Managers, particularly in the case of large military and space projects, tend to underestimate the uncertainties involved and not maintain enough

flexibility or settle too quickly on a particular design. When there is considerable uncertainty, it often pays to proceed sequentially, maintaining flexibility and using the experience that is gained to reduce the margin of error.

5. It is important to prevent isolation of research from development. In a company where this is the case, the research people may be divorced from practical applications and their work may have little practical value. On the other hand, if no line is drawn between research and development, the program may become dominated by short-term, product-oriented projects, and the exploration of fundamentally new areas may be neglected.
6. A reasonable limit should be placed on the amount of "firefighting" activities done by researchers. In most companies, management tends to value technical service to customers and to companies' manufacturing divisions as one of the most important products of its technical groups. Sometimes management feels that whenever an emergency call comes in, longer range R & D projects can be dropped temporarily. Too much work of this sort produces resentment among scientists and engineers and hinders production of important new ideas.
7. It is important for the R & D department to recognize that it is only one of many sources of new ideas. There is sometimes a tendency for R & D managers to become overly self-centered and to focus too much attention on new developments within their own laboratories while neglecting developments in other firms and industries or ideas offered by other departments of their own firms.

Conclusions

Although the exisitng literature regarding the effects of various managerial, organizational, and other factors on the productivity of an industrial R & D facility is somewhat limited, certain basic conclusions emerge:

— Scientists, engineers, and researchers should be given a high degree of autonomy. The overall program and research goals of the organization must be kept in focus, but, within reasonable limits, the scientist should be allowed to plan his own work as well as to choose and change projects.
— Management should recognize the professional status of the scientist. For example, research personnel should be consulted about plans or proposals which will affect their work. Compensation and organizational status should also reflect the importance and professional nature of the scientist's position.
— The scientist and engineer should be encouraged to engage in independent and creative thinking. A procedure should be set up where adequate reception and consideration of new ideas is always available. Negative or even neutral treatment of new ideas will probably result in a slowdown in productive thinking.
— Rigid rules and regulations in regard to appropriate behavior should be avoided. Non-conformists—people who like to work in the middle of the night—should be tolerated as long as the resulting disruptions remain within reasonable bounds. Unnecessary rigidity will result in resentment and lower productivity. An absence of rules and regulations, on the other hand, will result in a lack of direction. A balance should be sought in order to achieve maximum levels of satisfaction and performance.

Who is the ideal person for the job? A group of R & D managers was asked the following question: "If you had to fill a management position in your unit and you were forced to choose between two people, one having bench experience but no management experience and the other having management but no bench experience, who would you choose?" Half of the respondents chose the first person; the remaining picked the second. It seems that the best ingredients for an effective R & D manager are some combination of field experience, management training, and a creative instinct.

FOOTNOTES

[1]M. B. McLeod, "The Communication Problems of Scientists in Business and Industry," *Journal of Business Communication*, Vol. 15, No. 3, Spring 1978, pp. 27-35.

[2]*Ibid.*

[3]H. D. Balthazar, R. A. Boscht, and M. Menke, "Calling the Shots in R & D," *Harvard Business Review*, Vol. 56, No. 3, May-June 1978, pp. 151-160.

[4]R. M. Hower and C. D. Orth, *Managers and Scientists* (Cambridge, MA: Harvard University Press, 1963), p. 7.

[5]R. K. Mueller, *The Innovation Ethic* (New York, N.Y.: AMACOM, 1971), pp. 11-12.

[6]C. Margerison, "Managing the R & D Group," *Management Decision*, Vol. 16, No. 1, 1978, pp. 52-63.

[7]E. Mansfield, *The Economics of Technological Change* (New York, N.Y.: W. W. Norton and Company, 1961), p. 82.

[8]A. L. Frohman, "The Performance of Innovation: Managerial Roles," *California Management Review*, Vol. 20, No. 3, Spring 1978, pp. 5-12.

[9]D. Clutterback, "R & D Under Management's Microscope," *International Management*, Vol. 34, No. 2, February 1979, pp. 18-22.

[10]*Ibid.*

[11]*Ibid.*

[12]R. Balachandra and J. A. Raelin, "Predicting R & D Project Success in High Tech Industries," *The Proceedings of the Ninth Annual Conference of the New England Business and Economic Association*, November 5-6, 1981, University of Lowell, Lowell, Masschusetts, pp. 15-17.

[13]McLeod, pp. 27-35.

[14]*Ibid.*

[15]Mansfield, pp. 78-79.

DEREGULATION OF PIGGYBACK: ITS IMPACT ON THE MEMPHIS RAILROAD INDUSTRY

*Thomas G. Ponzurick and R. Neil Southern**

Introduction

Memphis is being strongly promoted by its Chamber of Commerce and the Memphis Uniport Association as "America's Distribution Center." According to statistics provided by *Handling and Shipping Management* magazine, Memphis has moved from 22nd in 1975 to 6th in 1980 on the list of major distribution centers in the United States (*Handling and Shipping Management*, 1980). The major factor contributing to this growth is Memphis' central location, which has enabled it to become the largest medium-sized airline hub city in the nation. As a river port, Memphis is second only to St. Louis in tonnage handled each year. In trucking, it is a major hub served by many of the nation's largest carriers, as well as numerous smaller regional and local trucklines. And in terms of rail transportation, Memphis is the third largest east-west rail center in the country. According to the *Journal of Commerce*, almost 100 trains arrive and depart from Memphis each day, generating jobs for about 3,000 employees with a Memphis payroll of approximately $54.0 million (*The Journal of Commerce*, 1981).

The purpose of this article is to focus on one major component of Memphis' distribution system, one which has continued to grow in spite of adverse economic conditions. This component, Trailer on Flat Car (TOFC or more popularly known as piggyback), now ranks second in terms of railroad carloadings with a 10.4 percent share of total cars loaded (coal carloadings remain number one, with a 26.6 percent share of total rail cars loaded). Despite the recent recession and the fact that total rail freight traffic increased only 3.5 percent in 1983, piggyback showed an increase of 21.9 percent nationally. This increase is particularly impressive in view of the fact that 20 of the 21 major rail commodity groups declined in number of cars loaded during 1982 (*Rail News Update*, 1984).

Why the success of piggyback? After all, most commodities shipped by piggyback are the same products whose consumption is affected by the economy, and the past history of TOFC reflects considerable susceptibility to fluctuations in the economy. "What accounts for this change from past patterns—patterns in which the economy sneezed and piggyback suffered a nosebleed?" (*Railway Age*, 1982). We believe that recent piggyback success is a result of the March 1981 Interstate Commerce Commission (ICC) decision exempting piggyback freight from economic regulation (Harper, 1982).

It is apparent that this exemption has been a vital stimulant, increasing awareness of intermodal possibilities and opening up the marketplace. Shippers, the individuals responsible for the purchasing of transportation service, seem to agree with this assessment. "To them, piggyback volumes have increased for two main reasons: rates have come down and service levels have gone up" (*Railway Age*, 1982). We believe both reasons have resulted from the exempt status of piggyback freight movements. In effect, the ICC exemption has encouraged railroads to work in conjunction with trucking companies, as well as to compete more effectively with them for freight movements.

The primary purpose of this article is to discuss how ICC deregulation of piggyback has affected Memphis area railroads. First, however, let us review how the piggyback concept operates, i.e., the various piggyback plans, and review briefly the recent history of piggyback service.

Piggyback "Plans"

The railroads in recent years have been very sensitive to their critics, who have accused them of having little imagination and no marketing sense. Piggyback is the primary answer to this criticism. Aggressive measures have been taken to improve service, attract new business, and achieve a more favorable traffic balance and better car utilization.

In the area of piggyback in particular, the railroads have been extremely innovative. They have aimed their marketing efforts not only at the shipper, but also at third parties such as motor carriers, freight forwarders, consolidators (shippers' agents), and shippers' associations. In doing so the railroads have attempted to provide "plans" for almost any customer need. The following is a sample of the "plans" available:

**The authors are, respectively, Assistant Professor of Marketing, West Virginia University, Morgantown, West Virginia; and Associate Professor of Marketing and Business Logistics, Memphis State University, Memphis, Tennessee.*

PLAN I is exclusively for motor carriers. It involves the rail movement of trailers or containers owned by motor carriers, with shipments moving on one bill of lading and billing done by the motor carrier. This plan accounts for approximately 10.0 percent of total piggyback freight.

PLAN II provides door-to-door service by railroads using their own trailers or containers. Tariffs are similar to those of motor carriers. This plan also accounts for approximately 10.0 percent of total piggyback freight.

PLAN II-1/2 provides for ramp-to-ramp service, with shippers (including freight forwarders or motor carriers) performing the pick-up and delivery service. Modified versions of this plan call for railroad pick-up or delivery, but not both. This is the most popular of the various plans, representing approximately 50.0 percent of total piggyback freight.

PLAN III provides ramp-to-ramp rates based on a flat charge, regardless of the contents of trailers or containers which are supplied by shippers, including freight forwarders and motor carriers. No pick-up or delivery is performed by the railroads. This plan accounts for approximately 15.0 percent of total piggyback freight.

PLAN IV is basically for freight forwarders. It requires the forwarders to furnish either an owned or leased trailer or container plus flat car. The railroads charge a flat rate for loaded or empty car movements, furnishing the power and rails. This plan accounts for approximately 10.0 percent of total piggyback freight.

PLAN V covers traffic moving generally under joint rail-motor services or other coordinated rail-motor arrangements. Either mode may solicit traffic for through movements. This plan accounts for approximately 5.0 percent of total piggyback freight (Association of American Railroads, 1983).

Piggyback: Trend Or Fad

Is TOFC the wave of the future or is it a passing fad? This is a question posed by many shippers, who question the railroads' commitment to this form of transportation—a commitment that has been lacking during the past several decades (*Railway Age,* 1982). A review of the history of piggyback operations reveals that, although conceived in 1926, this transportation concept did not begin to grow in volume until the 1950s. "Initial success did not last, however, as outdated regulation and the rapid expansion of the Interstate Highway System limited growth and caused market share to drop from 12.0 percent in the 1960s to 4.0 percent during the 1970s" (Booz, Allen, and Hamilton, 1980). As a result, railroads hedged on their commitment to piggyback service, concentrating instead on the traditional boxcar market.

Recent events have changed this situation though, in particular the increased cost of fuel and government actions on regulation—both events making piggyback more cost competitive today. "This has generated a new excitement and image for TOFC, leading one to believe this is a well entrenched industry" (Abruzzese, 1981). The facts and figures are promising. In 1971, 2,203,530 trailers and containers were loaded for piggyback service. In 1982, this figure was 3,385,172, an increase of more than 53.0 percent (*Yearbook of Railroad Facts,* 1982). Figures for the first three quarters of 1983 indicated that piggyback traffic is up more than 20.0 percent from the 1982 figures and represents the railroads' fastest growing segment of business (*Wall Street Journal,* October 20, 1983). These figures are impressive in view of the fact that they have occurred during a depressed economic period (see Table 1).

Table 1
PIGGYBACK LOADINGS

Year	Trailers and Containers
1961	902,260
1962	1,139,260
1963	1,294,090
1964	1,455,523
1965	1,664,929
1966	1,912,419
1967	1,983,793
1968	2,419,217
1969	2,497,586
1970	2,363,200
1971	2,203,530
1972	2,407,034
1973	2,758,044
1974	2,752,825
1975	2,238,117
1976	2,538,318
1977	2,850,231
1978	3,177,291
1979	3,278,163
1980	3,014,864
1981	3,102,764
1982	3,385,172
1983	Estimated 20% Increase

Source: Adapted from figures provided by the *1982 Yearbook of Railroad Facts* and the *Wall Street Journal,* October 20, 1983.

Effective March 23, 1981, the Interstate Commerce Commission exempted from regulation all rail and truck service provided by railroads in connection with domestic and international piggyback movements. In Ex Parte 230 (Sub 5), the ICC said its decision was based on findings that regulation of piggyback is not necessary to carry out transportation policy or to protect shippers from abuse of market power by the railroads. The ICC stated that exemption from regulation would "likely stimulate improvements in service without threatening any harm to individual shippers" (Interstate Commerce Commission, 1980).

To what extent have Memphis railroads been affected by piggyback deregulation? To gain a better understanding of this question, a study of the railroads serving Memphis was undertaken. The study was intended to determine what effect the granting of exempt status has had on the Memphis area piggyback business. In other words, has the TOFC exemption been a help or hindrance to the Memphis rail industry?

Methodology

A census was taken of the six on-line railroads serving the Memphis area. Only on-line companies (as opposed to off-line) were chosen for the following reasons: (1) local ramp operations have a direct impact on the Memphis community; (2) the respondents could more readily separate Memphis sales from sales in other cities and areas of the country. This eliminated much of the overlap that could exist between competing in-house operations, as well as presented a more accurate picture of the Memphis market. For these reasons, off-line railroads, operating through sales offices and/or representatives in the Memphis locale, were not included in the sample population.

The following railroads were interviewed by telephone: (1) Burlington Northern Railroad; (2) Illinois Central Gulf Railroad; (3) Missouri Pacific/Union Pacific Railroad; (4) L&N/Seaboard/Chessie System; (5) Southern Pacific/Cotton Belt; and (6) Norfolk Southern Railway. It is interesting to note that the six railroads serving Memphis are the top six out of seven railroads in the country (only Conrail does not serve Memphis). These six railroads' freight revenues for 1981 were more than 75.0 percent of the total for all Class I railroads in the country (Foster, 1983).

The telephone method of survey was chosen to insure a 100.0 percent response rate and to answer questions the respondent might have about the subject material. In each case the respondent contacted was a railroad executive responsible for the operation of piggyback services. This was done to insure knowledgeable responses to the questions asked.

A structured questionnaire was designed to direct the questioning and insure reliability and validity of the process. At the conclusion of the specific questions, an open-ended conversation allowed the respondent the opportunity to express thoughts and opinions about the exempt status of TOFC and its future direction.

Results

The results of the study may be expressed in terms of four specific areas: volume, rates, profitability, and revenues. The following changes were reported to have occurred since piggyback freight was granted exempt status:

All respondents stated that their firms showed an increase in the volume of Memphis piggyback carloadings since the Interstate Commerce Commission made its deregulation decision. Most respondents reported an increase of 10.0 to 20.0 percent per year.

Rates, in the meantime, showed a steady decline during this period, with most railroads reporting a decrease in both national and local rate structures. The exact percentage of decrease was difficult to ascertain due to the fact that rates are now set primarily on an individual basis through separately negotiated contracts with each shipper. When pressed, however, the respondents estimated that a 20.0 percent decrease in rates could be considered the overall average, both nationally and in the Memphis market.

Estimates of the profitability of piggyback traffic were also difficult to determine, but all respondents indicated that the increase in volume had at least offset the decrease in rates. Of those reporting improved profitability, 6.0 to 8.0 percent was given as the increased level of profits achieved since the ICC's deregulation decision.

With regard to revenues, most respondents reported substantial increases with averages ranging between 12.0 and 15.0 percent. An interesting sidelight to this issue was that one respondent estimated TOFC revenues to be increasing at a rate of 14.0 percent locally, while nationally the firm was decreasing at a rate of 3.0 percent. This bodes well for the strength of piggyback traffic in the Memphis marketing area.

Opinions, Thoughts And Comments

The last portion of this study, as alluded to earlier, included an open-ended discussion of the subject matter. The respondents were asked their attitudes and feelings about the TOFC exemption. Overall, the responses were quite positive, leading to the impression that the railroads are pleased with the flexibility they are now allowed to exercise. The most frequently mentioned positive aspect of this new-found flexibility was the elimination of the 30-day ICC waiting period for the approval of a proposed rate change. Under deregulation, rates now may be changed on the spot by telephone.

Respondents also expressed favorable attitudes toward the allowance of deregulated contract rates in that railroad piggyback service can now more readily compete with the motor carrier industry. This may be illustrated by the recent introduction of a citrus fruit piggyback unit train by one firm. This reintroduces the railroads' ability to compete in the $300.0 million perishable market, a transportation market previously dominated by trucking firms.

It is interesting to note that much of the piggyback selling effort is not done by the railroads directly. Rather, intermodal consolidators are handling a major portion of the sales responsibilities. The respondents pointed out that using "wholesalers" is extremely beneficial for all parties concerned, and this accounts for the increased use of consolidators in their sales networks.

All of the comments concerning deregulation were not positive, however. On the negative side of the ledger, the respondents pointed to the required cancellation of interline joint rates. As a result, the railroads may no longer work in conjunction with each other as easily as they did in the past when interline joint rates were controlled by the ICC. This has resulted in a less cohesive freight interchange system. Also causing some concern among the respondents is the fact that boxcar freight has decreased while piggyback shipments are showing an increase. This leads to speculation that TOFC is diverting boxcar freight rather than long-haul motor traffic. It was noted, however, that it is too early to tell if this is actually the case.

One final note of pessimism pertains to the volatile state now being experienced by the railroad industry. That is, deregulation has created a system in which a flood of day-to-day activities makes future planning extremely difficult. However, it was pointed out that stability should be achieved as rate structures develop over the long run. All in all, the open-ended discussion with the respondents may be summarized by stating that the overall attitude possessd by Memphis piggyback railroad executives is one of considerable optimism toward the exempt status of TOFC.

Conclusion

In March 1981, the Interstate Commerce Commission granted exempt status to trailer on flat car service. In doing so, it anticipated that the decision would expand the use of this form of transportation. The news of this exemption was received favorably by the railroad industry, as it optimistically set about the task of making piggyback a viable entity in our national transportation network. It may sound a bit odd, having two competing modes, rail and truck, working with rather than against one another. However, this is the case and rightly so. After all, piggyback takes advantage of the efficiencies of both modes—the flexibility of trucking and the long-haul cost effectiveness of railroads. As Donald V. Harper points out, the positive energy consequences of using truck-rail-truck transportation instead of all truck transportation are obvious and can be very important to the United States if TOFC is conducted on a large scale. A critical energy shortage in the country could eventually bring an end to long-haul truck transportation, with TOFC being substituted (Harper, 1982). These words were echoed by one of the study's respondents, who stated that the TOFC exemption will force railroads and motor carriers to work together in order to survive and prosper in the future.

It was the purpose of this study to determine the degree of change experienced in the Memphis piggyback market since exemption from regulation was granted in 1981. The results show that the volume in TOFC carloadings has increased substantially, while rates have declined. More importantly, there has been an increase in profitability.

These results indicate that the railroads are, indeed, making a strong bid to retain their prominent role in transportation, and that deregulation has had a positive impact on the Memphis railroad industry.

REFERENCES

Abruzzese, Leo. "Revitalized Railroads Are Primed for Piggyback," *Commercial Car Journal*, January, 1981, 87-95.

Becker, H. J., and Liz Jedenic. "Where the Distribution Centers Are," *Handling and Shipping Management*, November, 1980, 52-56.

Beier, F. J., and S. W. Frick. "The Limits of Piggyback: Light at the End of the Tunnel," *Transportation Journal*, Winter, 1978, 12-18.

Booz, Allen, and Hamilton, Inc. "Piggyback: The Efficient Alternative for the 80's," report for Transamerica Interway, Inc., New York, 1980.

"City is Third Largest East-West Rail Center," *The Journal of Commerce*, June 8, 1981, New York, 8.

Foster, Thomas A. "Financial Profile—Railroads," *Distribution*, August, 1983, 66-72.

"Freight Drop Charged to the Economy," *Rail News Update*, Association of American Railroads, January 12, 1983.

Harper, Donald V. *Transportation in America: Users, Carriers, and Government*. Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1982.

"How Strong is the Commitment to Piggyback," *Railway Age*, April 26, 1982, 26-27.

Interstate Commerce Commission. Ex Parte Number 230, Sub. 5, "Improvement of TOFC/COFC Regulation," 45 Fed. Reg. 79123, 1980.

Lambert, Douglas M., and James R. Stock. *Strategic Physical Distribution Management*. Homewood, Illinois: Richard D. Irwin, Inc., 1982.

"Moving It: Freight Transportation is Changing in the Deregulation Era," *The Wall Street Journal*, October 20, 1983.

Nellis, J. F., and W. W. Weart. "Will Intermodal Make It Big?" *Railway Age*, April 24, 1978, 30-31.

"New Peaks for Piggyback," *Railway Age*, October 30, 1978, 22-25.

"Railroads and Regulation: The Imperative Need for Change," a report by Richard J. Barber Associates, Inc., Washington, D.C., 1979.

"1983 Rail Traffic Surpasses 1982 Mark," *Rail News Update*, January 11, 1984, 1.

"Statistics of Railroads of Class I in the United States," *Association of American Railroads*, November, 1980, 6-7.

Welty, Gus. "Intermodal Technology: The Competition Heats Up," *Railway Age*, April 26, 1982, 15-16.

Welty, Gus. "Piggyback's Potential for Perishables," *Railway Age*, January 8, 1979, 30-32.

Yearbook of Railroad Facts, Association of American Railroads, September, 1982, 3-27.

A PRELIMINARY EVALUATION OF THE 1983 SOVIET SEED COTTON HARVEST

*Francis M. Stackenwalt**

For the second straight year, adverse weather conditions caused the Soviet Union to fall short of its seed cotton production targets. In 1982, heavy rainfall at the height of the harvest in October played a critical role in reducing seed cotton outturn to 9.284 million metric tons.[1] In 1983, torrential rains and hail in April and May resulted in considerable damage to freshly sown fields, necessitating the reseeding of much acreage. Kirgiziia, which again did not meet its target, reported in early June that 77.0 percent of its acreage was resown.[2] Uzbekistan, which barely made its plan goal, reworked about 30.0 percent of its fields, or roughly 550,000 hectares.[3] Tadzhikistan, which also failed to match production with goals, encountered similar problems, at one time reporting that 16,000 hectares were resown in one week alone.[4] While newspaper accounts in August claimed that initial growth lags had been overcome, final 1983 production statistics reveal that these claims were premature and overly optimistic. Uzbekistan, for example, was confident at the start of the harvest that its 6.0 million ton counterplan target would be met.[5] However, the republic in the end exceeded its state plan target by a meager 1,000 tons. As the following table shows, only Uzbekistan, Turkmeniia, and Azerbaidzhan fulfilled state plans. Tadzhikistan incurred a 19,500 ton deficit, and Kazakhstan and Kirgiziia, which have yet to publish output data, are suspected of harvesting only a small fraction of their assigned tonnage.

Table 1
1983 SEED COTTON STATE PLAN TARGETS AND PRODUCTION BY REPUBLIC
(in metric tons)

Republic	State Plan	Production
Uzbekistan	5,930,000	5,931,000
Turkmeniia	1,230,000	1,241,400
Tadzhikistan	900,000	880,500
Azerbaidzhan	695,000	845,800
Kazakhstan	345,000	n.a.
Kirgiziia	131,000	n.a.
Total USSR	9,231,000	9,200,000

Source: *Cotton Outlook* (10 February 1984).

**Assistant Professor of Management, Memphis State University, Memphis, Tennessee.*

The total USSR production statistic of 9.2 million tons, an obviously rounded convenience for mass circulation purposes, remains the only gross outturn figure so far published by the Central Statistical Administration.[6] Thus, actual production probably lies somewhere between 9.15 and 9.2 million tons. Aggregating the verified outputs of the first four republics listed in the table gives a first approximation of 8,898,700 tons. Adding Kirgiziia's sole reported statistic of 35.0 percent to plan target, or 45,850 tons, yields a second subtotal of 8,944,550 metric tons.[7] The 225,500 ton difference from the published gross harvest total must be very near Kazakhstan's final outturn.

As the harvest proceeded this season, an additional concern, besides slow maturation rates, arose causing much anxiety among Soviet cotton specialists. By mid-September, both the national and republican presses began complaining of faltering daily harvest rates in the Central Asian republics, a complaint echoed repeatedly during the remainder of the harvest. Tadzhikistan reported on October 2 that state purchases of seed cotton were one quarter less than made on that date in 1982.[8] Uzbekistan in 1983, compared with 1981 and 1982, was two weeks behind in registering the 5.0 million ton benchmark.[9] Similarly, daily rates in November 1982 for the Tadzhik republic averaged between 0.6 and 0.7 percent of state plan; in the same month in 1983 they fluctuated between 0.2 and 0.3 percent. Russian authorities attributed the low daily rates to harvest equipment disrepairs. Tadzhikistan claimed during the first week of October that a mere 25.0 percent of its combines were operational.[10] Uzbekistan for that week could place just 93.0 percent of its machinery in fields, and Turkmeniia reported that it had 1,300 less combines running than during the previous year.[11] Only Azerbaidzhan, which was the first republic to announce making its state plan, consistently reported acceptable daily rates, crediting satisfactory work records of farm repair and maintenance crews.[12]

Since dry weather prevailed well into December, the sluggish harvest tempo did not seem to detrimentally affect final outturns. In fact, it may even help improve quality. The Soviet press has yet to cite these below norm rates as a factor in this year's poor harvest but has, instead, persistently alluded to the unfavorable spring start when mentioning the 1983 crop. These rates suggest two

conclusions. First, they point out the necessity to develop faster-ripening cotton varieties which would lessen weather-related risks associated with late sowing starts and extended harvest schedules. In other words, faster-ripening hybrids would increase the chances for greater production stability from year to year.[13] Second, they underscore the need to manage and monitor maintenance operations at the farm level better than is being done at present. The combination of 1982-like weather conditions during harvest time and 1983-like low daily picking rates could engender a significant production disaster. Needless to say, maintenance progress reports and daily harvest rates will have to be closely scrutinized in 1984 and beyond for forecasting expected final production results. Gross seed cotton targets for 1984, like the previous year, continue the recent retrenchment policies first observed in 1982. This year's targets are only modestly above 1983's and significantly below the actual production levels achieved in 1980 and 1981 of 9.962 and 9.636 million tons, respectively.[14] Until additional information appears in this year's agricultural journals, assuming that it will, little more can be said about the 1983 harvest. Likewise, the precise reasons for the recent downturn in cotton targets are varied and complex, a subject begging research, but in general are chiefly a function of soil deterioration, declining farm labor productivity, and cotton qualitative problems.

Table 2
1984 SEED COTTON STATE PLAN AND COUNTERPLAN TARGETS BY REPUBLIC
(in metric tons)

Republic	State Plan	Counterplan
Uzbekistan	5,965,000	5,980,000
Turkmeniia	1,240,000	1,241,000
Tadzhikistan	900,000	910,000
Azerbaidzhan	765,000	770,000
Kazakhstan	340,000	345,000
Kirgiziia	90,000	91,000
Total USSR	9,300,000	9,337,000

Source: *Cotton Outlook* (10 February 1984) and *Sovetskaia Kirgiziia* (3 February 1984).

FOOTNOTES

[1]*Narodnoe Khoziaistvo SSSR v 1982g*, 215.

[2]*Sovetskaia Kirgiziia* (8 June 1983).

[3]*Pravda vostoka* (6 June 1983).

[4]*Kommunist Tadzhikistana* (25 May 1983).

[5]Counterplan targets are formulated by each of the cotton republics themselves and are an expression of their "socialist responsibility" to exceed centrally derived state plan goals.

[6]*Pravda* (29 January 1984).

[7]*Sovetskaia Kirgiziia* (22 November 1983).

[8]*Kommunist Tadzhikistana* (2 October 1983).

[9]*Pravda vostoka* (29 October 1981 and 12 November 1983).

[10]*Kommunist Tadzhikistana* (2 October 1983).

[11]*Pravda vostoka* and *Turkmenskaia iskra* (2 October 1983).

[12]*Bakinskii rabochii* (13 October 1983).

[13]The need was emphasized in the resolution "Measures for Further Raising the Effectiveness of Argicultural Science and Strengthening Its Ties with Manufacturing." See *Current Digest of the Soviet Press* (36)XXVIII, 6-7.

[14]*Narodnoe Khoziaistvo SSSR v 1982g*, 215.

The MID-SOUTH BUSINESS JOURNAL is available without charge. Please use this form to request a subscription or change an address and return to:

Bureau of Business and Economic Research
The Fogelman College of Business and Economics
Memphis State University
Memphis, Tennessee 38152

Check one:

☐ New subscriber

☐ Correction

Name and address:

Name _____

Address _____

City/State/Zip _____

Previous address for correction:

Address _____

City/State/Zip _____

MID-SOUTH BUSINESS JOURNAL (PUB 885720)
BUREAU OF BUSINESS AND ECONOMIC RESEARCH
THE FOGELMAN COLLEGE OF BUSINESS AND ECONOMICS
MEMPHIS STATE UNIVERSITY
MEMPHIS, TENNESSEE 38152

Second class postage
paid at Memphis, Tennessee

CONG INFO SE
SRI ACQUISITIONS
4520 EAST WEST HIGHWAY
BETHESDA MD 20814

9/29/84 U3040-1 A

2nd Quarter 1984

MID-SOUTH BUSINESS JOURNAL

Bureau of Business & Economic Research
The Fogelman College of Business and Economics
Memphis State University

MID-SOUTH BUSINESS JOURNAL

Volume IV, Number 3

July 1984

MEMPHIS STATE UNIVERSITY

Thomas G. Carpenter ..... President

THE FOGELMAN COLLEGE
OF BUSINESS AND ECONOMICS

M. E. Bond ..... Dean

BUREAU OF BUSINESS AND ECONOMIC RESEARCH

George D. Mickle, Jr. ..... Acting Director
James McFadyen ..... Managing Editor
B. Lewis Alvarado ..... Research Assistant
Shirley J. Stanphill ..... Research Editor

THIS PUBLICATION IS MADE POSSIBLE
IN PART BY A FINANCIAL GRANT FROM

THE NATIONAL BANK OF COMMERCE
MEMPHIS, TENNESSEE

CONTENTS

Volume IV, Number 3 July 1984

THE ECONOMIC IMPACT OF THE MEDICAL COMMUNITY: A MEMPHIS CASE STUDY
Howard P. Tuckman and Cyril F. Chang 3

CPE: DOES EXPERIENCE CHANGE ATTITUDES?
Richard W. Jones, Reboe J. DeLozier, Larry W. Spradley, and Robert A. Swerdlow 9

THE IMPACT OF FEDERALLY-ASSISTED HOUSING ON SINGLE-FAMILY HOUSING SALES: 1970-1980
Carol E. Babb, Louis G. Pol, and Rebecca F. Guy 13

RETIREMENT PLANS GET NEW LOOK WITH 401 (k) PLANS
William Brent Carper 18

The MID-SOUTH BUSINESS JOURNAL is published quarterly by the Bureau of Business and Economic Research, Memphis State University, Memphis, Tennessee 38152, in the months of January, April, July, and October, as a service to the business community. Second-class postage paid at Memphis, Tennessee. POSTMASTER: Send address changes to Bureau of Business and Economic Research, Memphis State University, Memphis, Tennessee 38152.

The opinions expressed in the authored articles are not necessarily those of the Bureau, the College, or the University, but are the responsibility of the individual authors. The material may be reproduced without permission if acknowledgment of the source is given.

An Equal Opportunity University

PS 6/84-1728

THE ECONOMIC IMPACT OF THE MEDICAL COMMUNITY: A MEMPHIS CASE STUDY

*Howard P. Tuckman and Cyril F. Chang**

The number of articles written in the medical economics area has grown rapidly in the last two decades.[1] At least three factors help explain this burgeoning literature. First, from 1960 to 1982, health care expenditures rose from 5.3 percent to 10.5 percent of GNP.[2] This explosive growth has focused a substantial amount of attention on how the costs of medical care can be kept down. Second, rising input costs and stricter government and third-party regulations have increased the pressure on medical institutions to find ways to produce and deliver health care more efficiently. This concern has been reflected in the recent adoption of a prospective hospital reimbursement system known as Diagnosis Related Groups (DRGs) which is likely to further heighten interest in efficiency. Third, competition from minor emergency clinics, for-profit chains, and alternative health care providers has challenged the market dominance of traditional institutions, forcing them to rethink their ideas about how to organize production.[3] This has increased the need for better information on the economics of health care. Finally, a substantial body of research has been financed by federal agencies such as the National Center for Health Research and the Health Care Finance Agency. This has led to the growth of a body of trained economists interested in exploring medical economics issues.

Interestingly, despite the prolific expansion of this new literature, little attention has been paid to the impact of medical communities on the local economies in which they are located. In part, this is because those persons engaged in dispensing services are too busy to write about the economic impacts of their work. In part, too, it reflects the difficulties inherent in gaining information on the direct and indirect impacts of the medical community.

This article makes a first step toward identifying and quantifying the major impacts a medical sector has on the community in which it is located. The figures presented here do not measure all the effects that an active medical sector may have. Nonetheless, they provide a useful first step toward identifying the direct effects that should be taken into account in preparing an estimate of economic impact. In this sense, this research of the medical community serves as a useful case study which can be replicated in other communities.

**The authors are, respectively, Distinguished Professor of Economics and Assistant Professor of Economics, Memphis State University, Memphis, Tennessee.*

The City of Memphis

Memphis, Tennessee is the 43rd largest SMSA in the United States with a 1980 population of 913,472.[4] Measured in terms of number of hospital beds, Memphis has a total of 5,300 staffed beds, a number which exceeds that of larger cities such as San Antonio and San Diego.[5]

Memphis had an annual Gross Regional Product of about $11.0 billion and provided a total of 329,000 jobs in 1982.[6] Approximately 16.6 percent of the jobs were in manufacturing, 18.9 percent in government, and 23.7 percent in the private service sector. The unemployment rate for the city tends to hover slightly above the average for the U.S. and in 1982 was 9.7 percent.

The institutional origins of the medical community date back to the founding of Memphis Hospital in 1829 and span a period of enormous growth and change. The city contains Baptist Hospital, which claims to be the nation's largest private, non-profit hospital measured in terms of number of beds and admissions; the world famous St. Jude Children's Research Hospital; and several world famous eye, ear, and orthopedic clinics.[7] The medical complex occupies a substantial portion of the total area in downtown Memphis. The hospitals and clinics of Memphis serve the five-state Mid-South region of Arkansas, Kentucky, Mississippi, Missouri, and Tennessee and bring in an estimated 76,000 patients from outside the Memphis SMSA.[8]

On average, the 19 hospitals in Memphis admit a total of more than 17,400 patients each day.[9] Thousands more are served at the 576 Shelby County physicians' offices and the 317 dental offices in the SMSA. The area's 6 nursing schools train over 1,500 nurses a year, and the vocational schools train a large number of technicians and para-professional students. Taken together, this suggests a medical community which has a substantial effect on the SMSA in which it is located. Yet, surprisingly little has been done to quantify the dollar impact of the medical sector on the local economy or to provide a comprehensive estimate of its impact on the labor force.

The Medical Sector Defined

For the purposes of this article the medical sector is defined to include the following entities operating within the Memphis SMSA: (1) public and private profit and non-profit hospitals including satellites, outpatient facilities, and long-term care facilities; (2) public and private clinics; (3) private doctors' offices including corporations, partnerships, and other groups; (4) free-standing clinics and emergency centers; (5) county, city, and other mental health and public health facilities; (6) long-term care facilities operated by public, private, religious, and charitable institutions; (7) dental, optometry, psychiatric, clinical psychology, and other related medical facilities; (8) medical programs including medicine, dentistry, nursing, optometry, pharmaceuticals, and psychiatry but excluding vocational and technical training programs; (9) pharmacies, optical dispensaries, medical appliances, and other related businesses; (10) pharmaceutical preparation businesses; (11) drug manufacturing companies; (12) medical instrument and appliance manufacturing businesses; (13) medical and dental laboratories; (14) sales to medical and medicine-related companies; and (15) entities engaged in regulation, administration, or support services related to the provision of medical services. Excluded from this definition are preventive medicine-related activities such as health clubs, health food stores, and programs in stress reduction unless provided in a medical facility.

The Impact of the Medical Sector on the Labor Market

The most readily identifiable jobs are those associated with the area's hospitals. There are, at present, twelve general and specialty hospitals in the downtown medical center including Baptist Hospital, City of Memphis Hospital, LeBonheur Children's Medical Center, Memphis Eye and Ear Hospital, Humana Specialty Hospital, Methodist Hospital, Mid-South Hospital, St. Joseph Hospital, St. Jude Children's Research Hospital, Memphis Mental Health Institute, Veterans Administration Hospital, and the University of Tennessee Center for the Health Sciences (UTCHS). An additional seven hospitals are located elsewhere in the area: Methodist South and Methodist North, Eastwood, St. Francis, Baptist East, Lakeside, and Naval Regional Medical Center. Together these facilities employ approximately 18.9 thousand full-time and 2.4 thousand part-time persons. Table 1 shows the full-time equivalent (FTE) employment for these hospitals, as well as other smaller ones in the area.

Under the category of other institutions are several additional employers of medical labor. These include employees of the Memphis and Shelby County Health Department (547), Blue Cross and Blue Shield of Memphis (313), the Southern College of Optometry (132), the 6 mental health centers and their satellites (460), the 30 active nursing homes (2,587), and the 9 home health and other outpatient care services (914).

Table 1
FULL-TIME EQUIVALENT (FTE) STAFF OF MEMPHIS HOSPITALS AND OTHER HEALTH INSTITUTIONS

Hospitals[1]	FTE	Other Institutions	FTE
Baptist East	1,064	Memphis and Shelby County Health Department	547
Baptist Medical Center	4,742	The Southern College of Optometry	132
Baptist Rehab Center	270	6 Mental Health Centers and Their Satellites	460
City of Memphis	1,967	30 Nursing Homes in the Greater Memphis Area	2,587
Eastwood	230	9 Home and Other Outpatient Care Services	914
Humana Specialty	58	Blue Cross/Blue Shield	313
Lakeside	183	Sub-total	4,953
LeBonheur	899	Total	26,359
Memphis Mental Health	371		
Methodist Central	4,308		
Methodist North	439		
Methodist South	449		
Mid-South	337		
Naval	607		
St. Francis	1,893		
St. Joseph	902		
St. Jude	758		
University of Tennessee	615		
Veterans	1,314		
Sub-total	21,406		

[1]Includes residents, interns, and other physicians employed on a payroll basis, but does not include private physicians, consultants, those employees under contract, nursing students, and paramedical students.

Source: *Joint Annual Report of Hospitals, 1982*, Tennessee Department of Public Health; and January 1984 and December 1983 telephone surveys.

Physicians are the most important component of the medical community. In 1981, the 1,800 doctors in Shelby County employed 4,390 secretaries, nurses, and other staff in their 576 offices. This figure includes the employees of over 60 clinics in the county such as Campbell Clinic, Family Practice Center, Memphis Area Medical Center for Women, Semmes-Murphey, and Shea Clinic. An additional 1.2 thousand employees work in the 317 dental offices in the county, 174 work for opticians, 152 work for other health personnel, and 551 work in other health-related offices. Table 2 provides data on the size distribution of these establishments in 1981.

A number of important and often forgotten components of the medical community are also included in the table. These are less obvious employers, yet they contribute a significant number of jobs to the area pool. Included are 126 drug stores in the Memphis area which employ approximately 1.4 thousand employees, the 36 medical and dental labs which employ about 480 employees, and the drug companies which employ about 1.1 thousand. Also included are 2 large pharmaceutical preparation companies with 1.1 thousand employees and the 14 makers of medical instruments and appliances with 1.2 thousand employees. The authors were unable to obtain estimates of the number of drug and hospital equipment salesmen who service the medical community, the number of persons who regulate health care organizations, and the number of persons providing accounting, legal, and technical services. However, over 37,000 positions are currently filled by persons performing jobs related to the delivery of health care. Based on 1982 employment data, this implies that roughly 1 in every 9 jobs in the Memphis metropolitan area is medical sector related.

Table 2
NUMBER OF HEALTH SERVICE ESTABLISHMENTS, BY EMPLOYMENT SIZE, 1981

	Number of Employees	Number of Establishments by Employment Size									
		Total	1-4	5-9	10-19	20-49	50-99	100-249	250-499	500-999	1,000 or more
Offices of Physicians	4,391	576	344	129	67	30	4	1		1	
Offices of Dentists	1,216	317	228	73	14	2					
Offices of Health Practitioners	356	85	70	10	2	1	2				
Nursing and Personal Care Facilities	1,666	26	5	1	2	4	7	7			
Hospitals[1]	15,352	15	4		1				3	4	3
Medical and Dental Laboratories	479	36	19	8	3	4	1	1			
Outpatient Care Facilities	914	41	16	4	9	7	4	1			
Health and Allied Services	551	23	11	1	4	4	1	2			
Drug Stores	1,433	126	37	30	42	16	1				
Pharmaceutical Companies	1,100	2				1					1
Medical Instruments and Supplies	1,200	7	1	1		1	2	1		1	
Total	28,658	1,254	735	257	144	70	22	13	3	6	4

[1]Short-term, non-federal hospitals only.
Source: *County Business Patterns, 1981—Tennessee*, Bureau of the Census, U.S. Department of Commerce, 1983, p. 109.

A Digression on the Desirability of Medical Sector Jobs

Communities tend to look for employers who create the "right kind" of jobs. What constitutes a desirable job is a matter of judgment, but several criteria are commonly employed. First, an ideal employer is one who creates jobs which do not pollute the air, dirty the water, or tax community services like police and fire protection. Second, the ideal employer should be in a stable industry which is not subject to strong cyclical swings, obsolescence, or destructive competition. Third, the ideal employer should be in a business which is likely to enjoy strong and steady growth. Fourth, the ideal employer is one who can utilize the types of labor skills found in abundance in a community or one who will train the types of labor available to provide these skills. Fifth, an ideal employer is one who does not make a large claim on public revenues, either by requiring inordinate police and fire protection or other services or by making extensive borrowings requiring the backing of local governments.[10]

When considering all five criteria, the Memphis medical community appears to come close to the top of the list as an ideal employer. Most medical firms in Memphis produce services rather than goods. They do this by combining specialized labor with sophisticated machinery to produce and deliver health care. These activities have virtually no adverse effect on the environment, and they have spillover benefits which actually provide positive externalities to the community in the form of reduced days lost on the job due to sickness, less chance of epidemics or contagious diseases, and fast and relatively low-cost access to high-quality, specialized care.

The medical industry is relatively recession-proof since a significant portion of medical revenues are paid by third parties. Hence, medical expenditures are not likely to fall as much as revenues in other sectors. Moreover, since the population is aging and as people age they consume more medical services, it is likely that the demand for health care will be strong in the foreseeable future. Recent cost control measures such as DRGs are likely to decrease the demand for medical services to the extent that third-party payments increase at a slower rate, but the effects of our fast-paced society and of the medical profession's growing ability to cope with more illnesses are likely to partially offset the revenue loss.

An ideal employer should utilize labor skills which are in abundance in the local community or he should train the available labor for the types of work required. Memphis has a large pool of unskilled and semi-skilled labor which finds it difficult to obtain employment at a time when manufacturing jobs at all skill levels are shrinking. The large base of service, clerical, and semi-skilled technical jobs in the area's hospitals provides an important source of employment for this group.

The importance of the hospital sector as a major employer of various types of labor is emphasized in Table 3. In addition to 609 highly-skilled staff physicians, the hospitals also employed 423 social workers, 370 therapists, 375 pharmacists and pharmacy technicians, 6.3 thousand nurses and nurses' aides, 2.1 thousand technicians, 1.2 thousand orderlies and other ward personnel, and 3.4 thousand food, housekeeping, and maintenance employees. The salaries these employees receive vary with the nature of the job and the employer. In early 1984, for example, a beginning hospital orderly made about $9.9 thousand annually, a food orderly about $9.1 thousand, a janitor about $9.5 thousand, a secretary about $11.6 thousand, and a registered nurse about $19.0 thousand.[11]

The medical sector makes a significant claim on the public resources of the city. In 1983, for example, several hospitals received city and county funds for support of indigents and for specific programs like the trauma center.

Table 3
MEMPHIS AREA HOSPITAL EMPLOYEE SUMMARY, SHORT-TERM HOSPITALS, 1981

Category	Employees
Total FTE Employees	20,022.6
Nurses and Nurses' Aides	6,291.5
Technicians	2,081.4
Therapists and Therapy Aides	370.0
Pharmacists and Pharmacy Technicians	374.9
Orderlies and Other Ward Personnel	1,173.7
Social Workers and Administrative Staff	423.1
Food, Housekeeping, and Maintenance	3,418.8
Staff Physicians	609.3
Other Non-Health Personnel	5,279.9
Total Training	754.0
Professional Student Nurses	673.0
Practical Student Nurses	-0-
Paramedical Training Program	81.0
Other Hospitals-FTE Employees	728.8
Psychiatric Hospitals	552.3
Research Hospitals	55.0
Geriatric Hospitals	121.5

Just for the expansion of the City of Memphis Hospital an estimated $60.0 million in revenue bonds has been brought to the financial market during the past three years.[12] Virtually all public and non-profit medical institutions are exempted from property taxes and certain other city taxes, but the benefits these institutions bring to the city in the form of the jobs outlined above outweigh the costs they impose.

Dollar Estimates of the Impact of the Major Health Care Organizations

Each year the UTCHS compiles data on the payrolls, operating expenses, and capital expenditures of the major health care providers. The latest figures for 1981 provide an incomplete but valuable insight into the importance of health care providers in the Memphis economy. Table 4 summarizes the annual figures for the entities for which data are available.

The major institutions paid out approximately $624.3 million in direct payrolls to their employees in 1981. Of that amount, the UTCHS complex paid $41.9 million; Memphis hospitals, $314.8 million; Memphis and Shelby County Health Department, $5.1 million; Blue Cross and Blue Shield of Memphis, $4.7 million; the Southern College of Optometry, $2.9 million; and the several nursing homes, $21.6 million. Also included in the total was $3.2 million for home health care, $15.7 million for pharmacies, and $214.5 million for licensed physicians. Note that the total figure includes neither the fringe benefits paid by the major health institutions nor the payrolls of the other medical entities discussed above.

The total dollar impact of the medical community goes far beyond employee compensation. The institutions listed above inject an additional $348.3 million into the economy through operating expenditures. No one knows exactly what proportion of these dollars is spent in Memphis, but a reasonable assumption is that the proportion is significant. The expenditures go for such items as paper products, drugs, office supplies, food and beverages, medical appliances, photographic film, uniform supplies, precision instruments, and telephones. The suppliers of these items, in turn, provide additional secondary employment opportunities not measured by this analysis of direct effects.

It is possible to utilize a multiplier to capture secondary effects. The implicit assumption made in this case is that the economy is operating at less than full employment.[13] The problem with the use of a multiplier is that it requires specific assumptions about the nature of the services purchased by the medical sector, where they are purchased, and the stability of the coefficients in the table used to derive the multiplier estimates. Ideally, we would have liked to derive specific estimates of the multiplier effects for each category based on recent input/output tables. However, time and available funds did not permit this level of sophistication. Hence, estimates were relied on which were used in a recent study by the UTCHS staff which showed that each dollar spent by the medical community results in between $1.83 and $2.50 of new spending in the Memphis area. This implies that the total effect of medical payrolls and operating dollars is to add between $1.84 billion and $2.5 billion to the Memphis economy.

Included in these figures are the expenditures of visitors to the medical complex. These persons come to Memphis to receive specialized and high quality care in the areas of neurosurgery, orthopedic surgery, liver transplants, childhood illnesses, neonatal intensive care, ear and eye surgery, and treatment of serious burns. The Tennessee Department of Public Health collects data on hospital patient origin each year.[14] This information, which is reported to the state, provides an estimate of the dollar importance of the specialized facilities. Of the approximately 205,000 patients admitted to Shelby County hospitals in 1981, over 37.0 percent came from areas outside Shelby County, and 90.0 percent of the non-Shelby County patients were from outside the Mississippi Delta area of Shelby, Fayette, Lauderdale, and Tipton counties. Altogether, over 76,000 non-residents were admitted to Memphis hospitals as patients. UTCHS estimates that these patients contributed $27.0 million to operating expenditures at the major health care organizations.

Finally, about $48.0 million was spent by the medical sector for capital improvements in 1981. These expenditures, largely for new construction, have a powerful effect on a local economy for several reasons. First, construction expenditures have a higher multiplier than many other types of expenditures (2.5). This is because a large portion of each new dollar spent enters the local economy and because the dollars are spent on items which involve substantial new job creation. Thus, a high level of medical construction leads to a prosperous local economy.

Second, medical construction tends to increase the value of surrounding property since it creates an amenity which people value. The amenity may be access to jobs or to medical care, or it may involve the access of businesses that serve the medical community to a major purchaser of their

Table 4
DOLLAR IMPACT OF HEALTH CARE ORGANIZATIONS, 1981
($000)

Entities	Annual Expenditures				
	Payroll	Operating	Capital	Personal	Total
Institutions					
UTCHS	$ 41,886	$ 22,823	$ 2,570		
Memphis Hospitals	314,817	265,916	45,493		
Memphis & Shelby County Health Department	5,079	1,327	0		
Blue Cross and Blue Shield[1]	4,669	8,605	N/A		
Southern College of Optometry	2,876	1,572	0		
Nursing Homes	21,550	17,475	N/A		
Home Health Care	3,164	N/A	N/A		
Pharmacies	15,717	30,527	N/A		
Licensed Physicians	214,544	N/A	N/A		
					$1,020,610
Students[2]					
UTCHS					
Nursing				$ 9,984	
Southern College of Optometry				$7,753	
				3,769	
					$ 21,506
Visitors to:[3]					
Hospital Patients				$27,021	
Southern College of Optometry				407	
					$ 27,428
Total					$1,069,544

[1]1982 data.
[2]Total educational expenditures.
[3]Expenditures made in the local economy for food, lodging, etc.
Source: Office of University Relations, University of Tennessee Center for the Health Sciences, 1983.

services. All these factors create higher property values and an incentive for further building. Third, construction is a form of investment which has the effect of increasing the productivity of the medical community. New buildings contain modern equipment and additional space. These forms of capital raise the productivity of existing employees and make it possible for the medical community to employ additional employees.

A complete accounting of the above benefits suggests that the Memphis medical community has had an enormous impact on the local community, ranging between $1.95 billion and $2.65 billion a year. This is a significant figure for an SMSA with an estimated Gross Regional Product of $11.0 billion in 1982. Yet, despite an intense interest in job creation in Memphis in the last three years, the attention paid to the importance of this high-tech, high-labor, high-growth sector has been minimal. This is surprising since when economic historians turn their attention to the last half of the twentieth century, we suspect that they will conclude that the medical sector was a major source of economic growth and change, not only for Memphis but for all of the local communities in which it was a large employer.

FOOTNOTES

[1]Although comprehensive survey articles are still unavailable, a check of the numerous references cited by recent health economics textbooks such as John Rapport, Robert Robertson, and Bruce Stuart, *Understanding Health Economics* (Rockville, MD: Aspen Systems Corporation, 1982); and Paul Feldstein, *Health Economics* (New York: John Wiley & Sons, 1983), confirm the rapid growth of the literature.

[2]See Robert M. Gibson, Daniel R. Waldo, and K. R. Lewit, "Health Expenditures, 1982," *Health Care Financing Review*, Vol. 5 (Fall 1983), pp. 3-4.

[3]Many health economists have done extensive research on the effects of competition on health care financing and delivery. See, for example, Alain C. Enthoven, *Health Plan* (Reading, Mass.: Addison-Wesley Publishing Co., 1980); and Federal Trade Commission, *Competition in the Health Care Sector: Past, Present, and Future*, 1978.

[4]Bureau of the Census, *State and Metropolitan Area Data Book*, 1982.

[5]The San Antonio SMSA had a total population of 1,071,946 and 4,451 staffed beds in 1980, while the figures for the San Diego SMSA were 1,861,846 persons and 2,881 beds. See American Hospital Association, *Hospital Statistics*, 1980.

[6]Bureau of Business and Economic Research, Memphis State University, State Data Center.

[7]*The Commercial Appeal*, October 18, 1981, p. 1.

[8]*Joint Annual Report of Hospitals, 1982*, Tennessee Department of Public Health, and telephone survey in January 1984.

[9]Ibid.

[10]Barbara Tuckman, "Location Decisions, the Florida Tax Structure, and Economic Development," in Howard Tuckman, *Financing Florida State Government* (Tallahassee: Rose Printing, 1979).

[11]Based on average starting salaries compiled from telephone conversations with representatives from Eastwood and Baptist Memorial hospitals.

[12]Department of Finance, Shelby County Government, Tennessee.

[13]If the economy is operating at full employment, then most economists believe that the multiplier will not operate. See Ezra Mishan, *Cost and Benefit Analysis* (New York: Praeger, 1976).

[14]*Joint Annual Report of Hospitals, 1982,* Tennessee Department of Public Health.

CPE: DOES EXPERIENCE CHANGE ATTITUDES?

*Richard W. Jones, Reboe J. DeLozier, Larry W. Spradley, and Robert A. Swerdlow**

Continuing education for members of the various professions has been, and remains, a controversial topic in the United States. One of the key reasons for the concern about continuing education has been the increased emphasis on the protection of the public served by the various professions. Responding to these public concerns, several states and the District of Columbia have enacted legislation providing mandatory continuing education requirements for some of the professions. Certified public accountants (CPAs) have not been exempt from this emphasis on CPE.

Since the concept of mandatory continuing education was first introduced in November 1967 by Marvin Stone, then president of the American Institute of Certified Public Accountants (AICPA), its progression throughout the licensing jurisdictions for accountants has been relentless.[1] The AICPA and National Association for State Boards of Accountancy (NASBA) adopted resolutions supporting the concept of mandatory continuing education in 1971.[2] Guidelines for qualifying CPE were established by the AICPA. Standards for program development established by the AICPA were designed to serve as guidelines to the licensing jurisdictions.[3]

Accounting services have expanded to include business and economic forecasts, administrative control evaluations, and other measures of management effectiveness. Tax and management consulting services have become more technical. New technology, particularly in the areas of automatic data processing and word processing, has not only expanded the capabilities of accountants, but also the level of technical knowledge required to provide quality accounting services. Technical knowledge today suffers an average loss of 50.0 percent of knowledge within five to ten years, presuming the regular use of that knowledge. Society has begun to allocate a greater proportion of resources to continuing education.

The accounting profession has not always responded positively and quickly enough to meet its new demands. Several highly publicized suits such as the *Continental Vending* case, in which the courts moved to establish credibility standards, pointed out the failure of accountants to discharge their public trust in a positive way. Inevitably, government regulations purporting to insure high quality in the practice of accounting proliferated. New requirements for tax return preparers were instituted by the Internal Revenue Service. Requirements of the Securities Exchange Commission regarding publicly-held companies became more stringent. The Financial Accounting Standards Board (FASB) issued statements of disclosure and reporting requirements for audited and unaudited financial statements made available to third parties at an ever increasing rate.

These pressures led the members of the accounting profession to the realization that to maintain their professional status, a program of continuing professional education was essential. The profession needed not only to improve the quality of accounting services, but also to convince the public that its best interests were foremost to the profession. However, the requirement was not instituted without controversy, or, to say the least, widespread interest. The January 1972 issue of *The Journal of Accountancy* presented an article entitled "An Analysis of Participation in Continuing Education" in which practitioners from four Mid-Western states were surveyed. Kansas and Iowa were included in this survey because of their similar environments, except for the continuing education requirement. At that time Iowa had already instituted CPE requirements, but Kansas had not. Since 1969, the number of states requiring continuing education has steadily increased, with Texas being one of the most recent states to require CPE. (Editor's Note: Current continuing education requirements in the Mid-South states are: Arkansas, 60 hours every two years; Louisiana, 90 hours over three years; and Mississippi and Tennessee, 120 hours over three years.)

Do the controversies which motivated that 1972 study still exist today? Has experience changed attitudes toward mandatory continuing education? In an attempt to address these issues, questionnaires were mailed to two groups of CPAs in January 1982. The first group consisted of 500 randomly chosen CPAs licensed by the state of Florida, a state which has had mandatory continuing education since

**The authors are, respectively, Professor of Accounting, Lamar University, Beaumont, Texas; CPA, Beaumont, Texas; Professor of Business Statistics, Lamar University, Beaumont, Texas; and Associate Professor of Marketing, Lamar University, Beaumont, Texas.*

January 1, 1974. The second group was composed of 500 randomly chosen CPAs licensed by the state of Texas, a state which had enacted a continuing education requirement which was to become effective during the reporting year of August 31, 1982, and applicable to the licensing year beginning January 1, 1983. There was a usable response rate of 45.4 percent (454 of the 1,000 questionnaires mailed). Of this number 231 (23.1 percent) were from Florida, 213 (21.3 percent) were from Texas, and 10 (1.0 percent) were licensees of both states. Although this response rate is slightly lower than that of the 1972 study in the Mid-West, it indicates a continued high interest in this subject.

Demographic Data

Participants in the survey were asked to indicate their years of experience as a CPA. The experience category containing the largest number of respondents of both groups is five years or less, which included 31.3 percent of all respondents. Table 1 presents an analysis of the responses by group.

Table 1
PERCENT OF RESPONSES BY EXPERIENCE CATEGORIES

Experience Categories	Florida Respondents	Texas Respondents	Both Groups	Total Respondents
5 Years or Less	34.6	28.2	20.0	31.3
6 to 10 Years	27.3	23.9	40.0	26.0
11 to 20 Years	18.2	23.0	40.0	20.9
Over 20 Years	19.5	23.9	-	21.1
No Response	0.4	0.9	-	0.7

Respondents were also asked to indicate their primary area of employment. Choices included were public accounting, industry, government, education, or other stated employment. Table 2 displays an analysis of the employment categories of the respondents. The majority of the Florida respondents (66.7 percent) were employed in public accounting. The employment category containing the greatest number of Texas respondents was industry, which included 44.1 percent of the respondents.

Table 2
PERCENT OF RESPONSES BY EMPLOYMENT CATEGORIES

Employment Categories	Florida Respondents	Texas Respondents	Both Groups	Total Respondents
Public	66.7	40.8	80.0	54.8
Industry	21.2	44.1	20.0	31.9
Government	6.5	4.7	-	5.5
Education	2.6	5.2	-	3.7
Other	3.5	6.1	-	4.6

A question arises at this point concerning the difference in employment categories. Since Florida requires only those certificate holders engaged in the practice of public accounting to meet its CPE requirements, does the lower percentage of CPAs in Florida engaged in industrial accounting indicate a lessening of desire to achieve certification by this non-public group or is it a reflection of a more industrial economic environment in Texas?

Additional information requested of those CPAs in public practice included the type of firm in which they were employed. Table 3 presents an analysis of the type of firm in which respondents were employed. In both groups females comprised approximately 10.0 percent of the sample.

Table 3
PERCENT OF RESPONDENTS EMPLOYED IN PUBLIC ACCOUNTING BY FIRM CLASSIFICATION

Classification of Firm	Florida Respondents	Texas Respondents	Both Groups	Total Respondents
National	23.4	16.1	50.0	21.7
Regional	5.2	1.1	12.5	4.0
Local	46.1	33.3	37.5	41.4
Individual Practitioner	22.7	43.7	-	29.3

Perceptual Differences Toward Mandatory CPE

Tables 4 and 5 show the differences in attitudes toward CPE between the two groups. Texas licensees tended to strongly oppose mandatory CPE with periodic recertification for continued licensing, whereas Florida licensees tended to strongly favor this concept. Since the Florida system of continuing education required recertification or re-establishment every two years in order to maintain an active license to practice public accounting, one possible explanation of the response of these licensees is that the response is an expression of their satisfaction with their system. Apparently, Texas licensees were still opposed to the notion of mandatory continuing education even

Table 4
PRECENT OF RESPONSES OF FLORIDA GROUP CONCERNING MANDATORY VERSUS VOLUNTARY CONTINUING PROFESSIONAL EDUCATION ISSUES

	Strongly Opposed	Opposed	Neutral	Favor	Strongly Favor
Mandatory CPE with Periodic Recertification for Relicensing	20.8	14.7	8.2	23.4	31.2
Mandatory CPE with Some Other Form of Enforcement	8.2	13.9	19.9	32.9	19.5
Voluntary CPE with Mandatory Reporting Requirement	21.2	33.3	19.9	13.9	6.5
Voluntary CPE with No Reporting Requirement	40.3	34.2	10.8	5.6	3.9
Required CPE as a Disciplinary Action of the State Board Only	34.2	27.7	16.9	10.4	3.9
Mandatory Re-examination and Recertification for Relicensing	61.9	22.9	6.9	3.0	1.3

MID-SOUTH ECONOMY

BUREAU OF BUSINESS & ECONOMIC RESEARCH THE FOGELMAN COLLEGE OF BUSINESS AND ECONOMICS MEMPHIS STATE UNIVERSITY

STATISTICAL SUPPLEMENT

THE MID-SOUTH ECONOMY

MID-SOUTH ECONOMY

The U.S. and Mid-South economies continued on the path of expansion during first quarter 1984. The nation's real Gross National Product grew at an upwardly revised annual rate of 8.8 percent, and the Consumer Price Index registered a moderate 4.5 percent increase over the past twelve months. Industrial production in April registered its 17th consecutive monthly increase, 14.4 percent higher than last April and 6.9 percent above the previous peak in July 1981. However, for the past three months the nation's unemployment rate has stood at 7.8 percent, and interest rates have begun to creep upward. The negative effects of higher interest rates on interest-sensitive industries such as housing and automobiles, coupled with a more cautious approach by businessmen to moderating demand from consumers and inventory buildup, have led many observers to expect the momentum of recovery to slow down for the remainder of 1984. Accordingly, the Chemical Bank of New York's business confidence scorecard for the second half of 1984 rates four economic factors as being neutral to moderately favorable, four financial factors as being neutral (higher corporate liquidity offsets negative supply and demand factors for loanable funds), and four psychological factors as being neutral to moderately unfavorable due to federal budget deficit prospects and weaknesses in consumer confidence.

For the Mid-South, two recent reports provide evidence of a robust economy. First, a National Planning Association study reported that in 1983 Mid-South states registered $5.4 billion in new investment, creating 66,378 new jobs. This figure represented approximately 44.0 percent of the new jobs created in the eleven-state Southeast region. Second, a recent analysis by Saloman Brothers reported that business loan activity and employment growth from first quarter 1983 to first quarter 1984 was "particularly rapid" in the Southeast region, outpacing all other regions. Business loans at banks in the Southeast increased twice as fast as in the West and Texas regions, with employment growth four times as rapid as in the second place Western states.

Labor

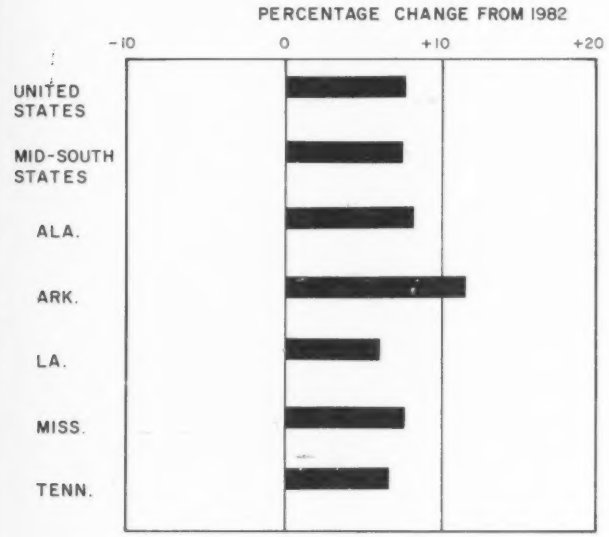
The Mid-South's aggregate unemployment rate fell below double digits in April 1984 to stand at 9.3 percent, a decline of 2.4 percentage points from last April. Total non-agricultural employment added 107,400 more workers to Mid-South payrolls from the levels of a year ago. Manufacturing employment gains were especially good in electrical/electronic equipment across the Mid-South states, with textiles improving in Tennessee and Mississippi. Alabama registered solid gains in its basic steel industry, with Tennessee registering its best gain in transportation equipment. On the non-manufacturing side, Alabama and Tennessee registered solid gains in construction employment, with retail trade and service employment up across the Mid-South. One especially bright note concerning employment was found in a Conference Board survey of chief executives which indicated that 50.0 percent of the respondents are looking for a rise in own-industry employment during the remainder of 1984, by far the highest percentage figure since 1978.

Construction

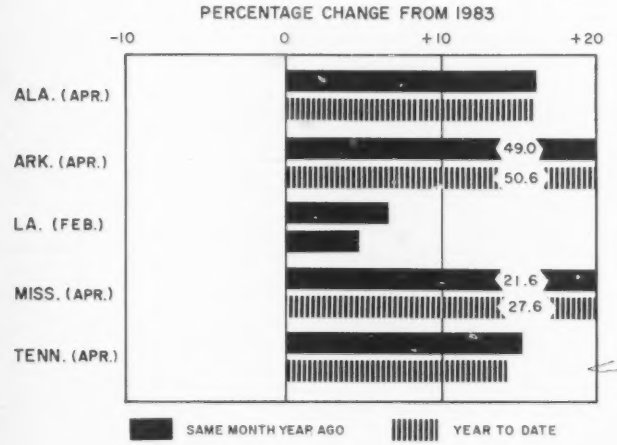
For the twelve-month period ending in March 1984 compared to the same twelve months in 1983, total residential permits increased 69.0 percent in the Mid-South (excluding Arkansas), outpacing the national increase of 48.2 percent. Alabama, Mississippi, and Tennessee continued to outperform the nation for the first four months of 1984. Non-residential construction activity also continued to outpace the nation for most of the Mid-South states except Louisiana. Construction of industrial buildings was mixed across the Mid-South, with Tennessee turning in the best performance, up 66.0 percent from a year ago.

Meanwhile, the National Association of Home Builders' index of housing activity declined for the second straight month, which is an indication that housing activity is expected to "trail off by the end of the year." Higher interest rates are also expected to lower builders' expec-

PERSONAL INCOME - IV QTR. 1983

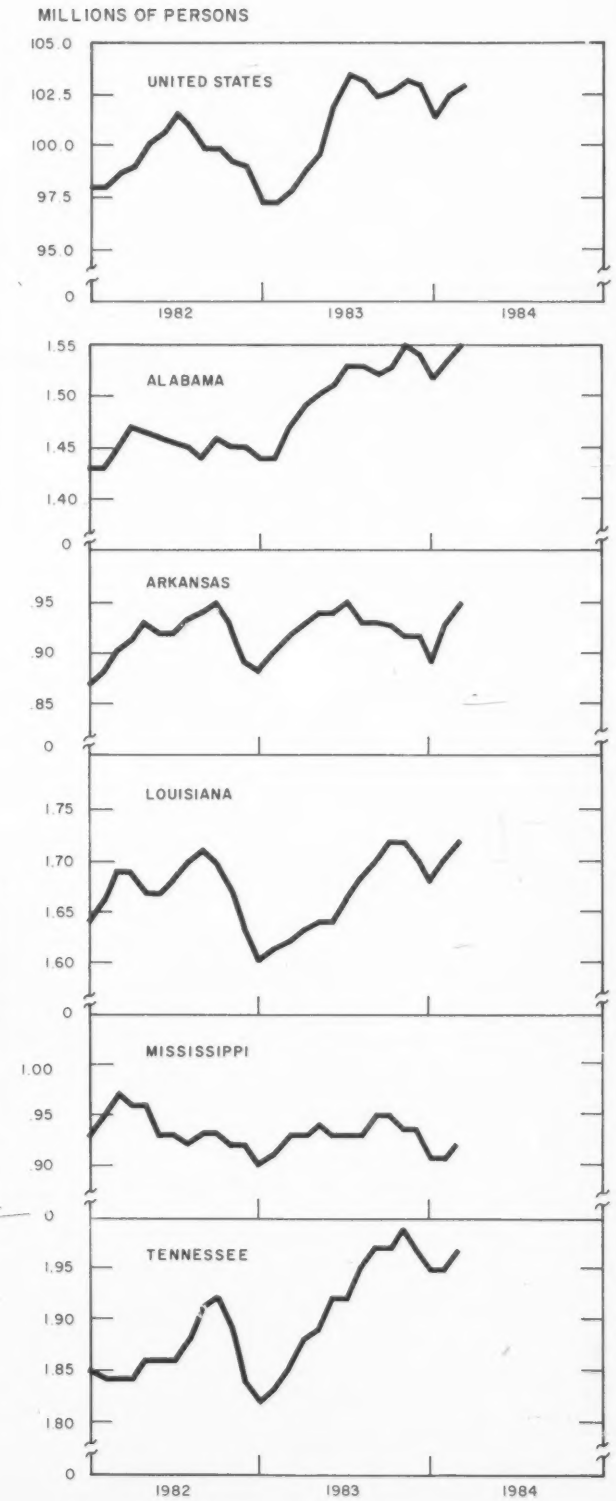


SALES TAX COLLECTIONS 1984



SOURCES: BUREAU OF ECONOMIC ANALYSIS
STATE DEPARTMENTS OF EMPLOYMENT SECURITY AND REVENUE.

TOTAL EMPLOYMENT



tations. The current Federal National Mortgage Association conventional fixed-rate mortgage is slightly above 14.0 percent.

Finally, according to the April 1984 issue of *Work Boat*, which details the Corps of Engineers' Mid-South waterways construction projects for fiscal year 1984, the Mid-South is anticipated to receive $31.7 million in new construction. Louisiana will receive the majority of the funds for hurricane protection, and Mississippi will receive $2.0 million for the Tennessee-Tombigbee waterway.

Finance

Recent increases in interest rates since January have raised the level of uncertainty in money markets. The average prime rate continues to languish in double digits, experiencing a 150 basis points rise since January, with six-month prime commercial paper increasing 300 basis points from its levels of a year ago.

Mid-South commercial banks registered an increase of 7.0 percent in total deposits from last March, with savings deposits accounting for most of the increase. However, savings deposits are well below the levels registered in January. Mortgage loans made by Mid-South savings and loans totaled $584.3 million in March 1984, 24.4 percent higher than last March. Also, net savings flows have declined at Mid-South savings and loans, indicative of the lower personal savings rate across the nation.

LABOR 1984	United States (March)	Mid-South States				
		Alabama (April)	Arkansas (April)	Louisiana (April)	Mississippi (April)	Tennessee (April)
Civilian Labor Force	111,828,000	1,776,100	1,065,900	1,915,800	1,032,800	2,192,600
Percent Change Year Ago	+ 2.0	+ 0.5	+ 4.0	+ 0.4	- 3.8	+ 0.1
Unemployed	9,057,000	195,700	91,700	169,900	96,800	185,800
Percent Change Year Ago	-23.7	-23.1	-17.8	-28.1	-34.6	-32.8
Unemployment Rate						
1984	8.1	11.0	8.6	8.9	9.4	8.5
1983	10.8	14.4	10.9	12.4	13.9	12.6
Non-Agricultural Wage & Salary Employees	91,788,000	1,346,200	770,200	1,569,600	805,400	1,791,400
Percent Change Year Ago	+ 4.1	+ 2.6	+ 4.8	+ 0.9	+ 2.7	+ 5.1
Manufacturing Employment	19,551,000*	351,900	209,900	178,900	211,800	493,200
Percent Change Year Ago	+ 7.0	+ 5.2	+ 6.7	+ 1.0	+ 7.1	+ 6.9
Non-Manufacturing Employment	72,939,000*	994,300	560,300	1,390,700	593,600	1,298,200
Percent Change Year Ago	+ 3.4	+ 1.7	+ 4.1	+ 0.9	+ 1.2	+ 4.4
Average Weekly Earnings of Production Workers in Manufacturing	$369.87	$324.28	$298.82	$425.54	$281.48	$316.06
Percent Change Year Ago	+ 6.9	+ 6.8	+ 8.6	+10.6	+ 7.8	+ 6.8
Average Weekly Hours of Production Workers in Manufacturing	40.6	41.1	40.6	42.3	40.5	41.1
Percent Change Year Ago	+ 2.5	+ 2.2	+ 2.3	+ 7.4	+ 2.8	+ 2.8
Average Hourly Earnings of Production Workers in Manufacturing	$ 9.11	$ 7.89	$ 7.36	$ 10.06	$ 6.95	$ 7.69
Percent Change Year Ago	+ 4.2	+ 4.5	+ 6.2	+ 3.0	+ 4.8	+ 3.9

*Seasonally adjusted.

Source: Departments of Employment Security and Survey of Current Business.

CONSTRUCTION[1] MARCH 1984	United States	Alabama	Arkansas	Louisiana	Mississippi	Tennessee
Total Building						
Percent Change Year Ago	+40.3	+58.2	N.A.	+27.0	+45.9	+ 70.3
Residential Building						
Percent Change Year Ago	+58.9	+65.3	N.A.	+51.7	+60.1	+105.4
Non-Residential Building[2]						
Percent Change Year Ago	+21.6	+53.3	N.A.	+ 9.4	+28.4	+ 49.8
Total Dwelling Unit						
Percent Change Year Ago	+48.2	+67.7	N.A.	+51.3	+60.9	+100.0

[1]Twelve-month cumulative rate.

[2]Non-residential data exclude the cost of construction for publicly-owned buildings.

Source: The Federal Reserve Bank of Atlanta from data supplied by the Bureau of Census.

FINANCE MARCH 1984	United States	Mid-South States	Alabama	Arkansas	Louisiana	Mississippi	Tennessee
Member Banks as of March 1984 Percent Change from Comparable Date in 1983							
Total Deposits	+ 7.5	+ 7.0	+ 8.0	N.A.	+ 5.7	+ 7.8	+ 7.3
Demand Deposits	+ 3.8	+ 2.3	+ 7.2	N.A.	- 2.2	+ 3.2	+ 4.0
Time Deposits	+ 3.3	+ 5.1	+ 5.4	N.A.	+ 2.7	+ 4.9	+ 8.0
Savings Deposits	+17.2	+15.3	+15.9	N.A.	+22.3	+23.3	+ 5.0

Source: The Federal Reserve Bank of St. Louis and the Federal Reserve Bank of Atlanta.

SAVINGS AND LOAN ACTIVITY MARCH 1984	Alabama	Arkansas	Louisiana	Mississippi	Tennessee
Mortgage Loans Made (millions)	$76.9	$185.7	$215.1	$44.6	$ 62.1
Percent Change Year Ago	+27.1	+ 1.6	+ 40.5	+51.7	+ 40.1
Percent Change Year-to-Date	+38.6	+ 49.5	+ 64.6	+39.6	+ 31.6
Net Savings Flow (millions)[2]	$66.8	$125.9	$232.2	$32.0	$106.5
Percent Change Year Ago	-34.6	- 31.5	- 4.9	-23.8	- 18.8
Percent Change Year-to-Date	-44.6	- 47.4	- 15.7	-39.3	- 70.0

[1]Figures are for total loans made.

[2]Net savings flow equals new savings received plus dividends credited minus savings withdrawn.

TENNESSEE ECONOMY

The Tennessee economy continued to perform well during first quarter 1984. The state's unadjusted unemployment rate in April was 8.5 percent, down 2.6 percentage points from the January rate and the lowest in the five-state Mid-South region. Also, initial claims for unemployment benefits during April were 33.7 percent below last April's level. Manufacturing employment is 6.9 percent higher than a year ago, and average weekly hours for production workers climbed to 41.1.

Tennessee's farmers have been aided by increased farm real estate values and improvements in weather conditions. Planting is near completion due to improved weather, and a recent report by the U.S. Department of Agriculture showed that the average value per acre of land and building on Tennessee farms was 3.0 percent higher than a year ago, while farm real estate values nationally fell 0.5 percent. Additionally, the index for prices received for crops by Tennessee farmers is 18.4 percent higher than last May; however, prices for livestock registered a decline of 3.4 percent.

Construction activity also remains robust. For the twelve-month period ending in March 1984 compared to the same period in 1983, total building activity advanced 70.3 percent, with multi-family units and office buildings the best performers. Construction employment added 10,600 workers since last April, and total mortgage loans closed at Tennessee savings and loan institutions increased 34.1 percent.

Finally, a recent study by the National Planning Association ranked Tennessee second among Southeastern states in jobs created during 1983 and predicted that Tennessee's economy would have the eleventh fastest growth rate in the nation through 1990. Additionally, a study by Howard Ecker and Company ranked Memphis the least expensive among 34 major cities in terms of business relocation cost per employee.

though such requirements were imminent. Only 17.6 percent of the respondents who strongly favored mandatory education with recertification for relicensing were from Texas, whereas 82.4 percent of those strongly favoring this concept were currently practicing under these requirements.

Table 5
PRECENT OF RESPONSES OF TEXAS GROUP CONCERNING MANDATORY VERSUS VOLUNTARY CONTINUING PROFESSIONAL EDUCATION ISSUES

	Strongly Opposed	Opposed	Neutral	Favor	Strongly Favor
Mandatory CPE with Periodic Recertification for Relicensing	50.7	24.9	4.2	11.7	7.0
Mandatory CPE with Some Other Form of Enforcement	17.8	23.5	16.9	25.4	13.6
Voluntary CPE with Mandatory Reporting Requirement	11.7	15.5	26.3	24.4	18.8
Voluntary CPE with No Reporting Requirement	18.8	30.0	26.3	8.0	12.7
Required CFE as a Disciplinary Action of the State Board Only	23.0	29.6	22.5	14.6	5.6
Mandatory Re-examination and Recertification for Relicensing	73.2	18.8	1.4	2.8	1.4

The second system of continuing education considered was mandatory continuing professional education with some other form of enforcement (other than recertification for continued licensing). Again, there is a significant relationship between the respondents and the respondents' state of experience.

A system of voluntary continuing education with mandatory reporting received opposition from the Florida respondents. The modal attitude of this group was to "oppose" with 33.3 percent of the responses, followed by "strongly oppose" with 21.2 percent of the responses. The modal attitude of the Texas licensees was "neutral" with 26.3 percent of the responses, closely followed by 24.4 percent of the responses indicating "favor."

Voluntary continuing education with no reporting gained little support from either group. However, the percentage of Florida licensees opposed to this idea was notably greater than that of the Texas licensees. The opposite was true of favorable responses.

Requiring continuing professional education as a disciplinary action of the state board of accountancy is not a true system of continuing education; rather, it is an alternative to having a system of CPE. Only the CPAs found to have been performing substandard work by the state board of accountancy would be required to complete continuing education hours. Neither group seemed to favor this concept, and the differences between the responses of the two groups were not statistically different.

This same lack of disagreement was evident in the responses to the last alternative. Of the 454 respondents, 303 (66.7 percent) strongly opposed mandatory re-examination and recertification for continued licensing.

Other Results

Additional questions were asked in the survey. Respondents were asked if there were certain groups which should be exempt from mandatory CPE requirements.

Table 6 presents a summary of the responses concerning exemption of certain groups. There was statistically significant agreement in the overall responses of the two groups. The only chi-square statistic which is significant at the .05 level concerns the exemption of accountants in industry from continuing education requirements. One possible explanation for this difference in responses might be found in the different composition of the two groups. Since only 21.2 percent of the Florida respondents were in industry and 44.1 percent of the Texas respondents were in industry, this difference in response might reflect a desire by the Texas industrial accountants to exempt themselves.

Table 6
PERCENT OF RESPONDENTS FAVORING EXEMPTION OF CERTAIN GROUPS OF CPAs FROM CONTINUING EDUCATION REQUIREMENTS

Group to be Exempt	Favoring Exemption	
	Florida Respondents	Texas Respondents
Education	21.6	15.0
Government	15.2	19.2
Industry	16.0	27.2
Public	3.5	2.3
None	51.9	45.5

Another question posed concerned itself with the appropriate number of CPE hours to be required each year. Opinions of the two groups regarding the appropriate number of hours were significantly different. The prevalent choice of the Texas respondents was the 33 to 40 hour category, while the Florida respondents chose 25 to 32 hours. However, 10.0 percent of the Florida licensees favored 41 hours or more per year; only 3.3 percent of the Texas licensees thought 41 or more hours was the most appropriate number. Florida respondents opted for the number of hours currently required under their law. Texas licensees selected the number of hours proposed for their requirements, which is also the recommended number by the AICPA.

A final question addressed the attitudes concerning the most effective method of obtaining CPE, and the results are presented in Table 7. There were certain notable differences of opinion between the two groups. "In-firm" programs were approved by 29.0 percent of the Florida respondents, but only 18.3 percent of the Texas respondents selected "in-firm" programs. A greater percentage of Texas licensees indicated their approval of seminars and

conferences of other professional groups approved by the state society. More Florida CPAs recognized professional development courses with testing upon completion as an acceptable method than did Texas CPAs. This may be attributable to recognition by Florida respondents that presence at a course does not provide enlightenment unless the material is absorbed by the participant. The years of experiencing continuing education requirements may have brought the realization that some form of acquired knowledge is necessary for such courses to be effective.

Table 7
PERCENT OF RESPONSES BY PREFERENCE OF METHODS OF OBTAINING CONTINUING PROFESSIONAL EDUCATION

Method	Florida Respondents	Texas Respondents
Technical Sessions at AICPA, State Society, and Local Chapter Meetings	26.8	30.5
University or College Courses	13.0	18.3
Formal, Organized, In-Firm Programs Approved by State Society	29.0	18.3
Professional Development Programs of the AICPA and State Society Without Testing	35.1	35.2
Professional Development Programs of the AICPA and State Society With Testing Upon Completion	15.2	13.6
Seminars and Conferences of Other Groups Approved by Society	23.8	33.8
Preparation and Presentation of Professional Development Course	11.7	11.7
Teaching a College Course	5.2	4.7

Conclusions

Throughout the steady spread of mandatory continuing education requirements to the licensing jurisdictions a controversy has remained over whether this was the most appropriate way to combat the problem of substandard work by CPAs. Clearly, accountants are still not in agreement about whether a mandatory CPE system is better than a voluntary system. CPAs who had worked under a CPE requirement felt differently than CPAs who had not yet experienced mandatory continuing education requirements. The CPAs who had not experienced the CPE requirement favored a voluntary continuing education system. CPAs who had experienced CPE indicated a preference for mandatory continuing education systems. This may be an indication that after a mandatory system of continuing education has been in effect for a number of years and CPAs have had the opportunity to adjust their professional lives to this additional demand, they do not find compulsory CPE quite so burdensome. The clearly demonstrable difference in attitudes might best be explained as a reflection of the differences in experience. Those who have not yet experienced the requirement but are faced with imminent installation of the requirement probably register a negative attitude because of fear of the unknown, whereas those who have experienced mandatory CPE feel the requirement justified. In this light, the study results can be interpreted as an affirmation of the validity of the concept of CPE.

FOOTNOTES

[1]Elmer G. Beamer, "Continuing Education—A Professional Requirement," *Journal of Accountancy*, MXXXIII (January, 1972), 32.

[2]*Report of the Committee on Continuing Education*, Chairman Elmer G. Beamer (New York: The American Institute of Certified Public Accountants, April 7, 1976), p. 11; and National Association of State Boards of Accountancy, *Model Provisions*, p. 8.

[3]"Standards for CPE Program Development," *Journal of Accountancy*, CXLII (July, 1976), 94.

THE IMPACT OF FEDERALLY-ASSISTED HOUSING ON SINGLE-FAMILY HOUSING SALES: 1970-1980

*Carol E. Babb, Louis G. Pol, and Rebecca F. Guy**

Introduction

This article focuses on the impact of federally-assisted housing on single-family home selling prices in Memphis, Tennessee. Specifically: Does the placement of federally-assisted housing have a deleterious effect on housing sales prices in the surrounding area? However, before discussing impact, a brief history of the national legislation which created federally-assisted housing will be presented.

Federal Housing Programs

The origin of federally-assisted housing in the U.S. can be traced to the Great Depression of the 1930s. With the passage of the National Industry Recovery Act (NIRA) in 1933, the Public Works Administration (PWA) was created. Under the legislative mandate of the NIRA, the PWA bought land, cleared houses, and built 50 low-rent housing projects in 37 cities.

In 1934, the National Housing Act was approved. It established the Federal Housing Authority (FHA) and contained two sections dealing with the financing of public housing. Section 221(d)(3) of this legislation provides for multi-family rental housing for low- and moderate-income households. Its objective is to assist in the financing of the construction or substantial rehabilitation of multi-family (five or more units) rental or cooperative housing. This program allows for project mortgages to be insured at the FHA's ceiling interest rate for 100.0 percent of the total project cost. The insured mortgage amounts are to be controlled by statutory dollar limits per unit intended to assure moderate construction costs. These mortgages may be obtained by public agencies; non-profit, limited-dividend, or cooperative organizations; private builders; or investors who sell completed projects to such investors (U.S. Department of Housing and Urban Development, 1978:27). Units financed under this program may qualify for additional assistance under the Section 8 program (to be discussed later) if occupied by eligible low-income families.

Section 236 of the 1934 Housing Act established guidelines for an alternative means of financing public housing units. Under Section 236, mortgage insurance, interest reduction, and operating subsidies are provided in order to reduce rents for low-income families. Originally, the Department of Housing and Urban Development (HUD) insured multi-family mortgages and paid interest subsidies to lenders, which allowed the mortgage to be paid off by the project owner at a very low interest rate (as low as 1.0 percent). The reduction in monthly rents was designed to produce new or substantially rehabilitated rental or cooperative housing units for low-income households. Tenants contributed 25.0 percent of their adjusted income, or the basic rent, whichever was greater. Beginning in 1974, HUD paid additional subsidies to cover the difference between the tenant's contribution and the actual costs of operating the project. Another recent modification in regulations requires tenants to contribute 30.0 percent of their adjusted income or the basic rent, whichever is greater. Eligibility for Section 236 mortgages is the same as for the 221(d)(3) mortgages. Section 236 housing is open to both tenants who can afford fair market rents and those who cannot. However, only the latter are subsidized (Department of Housing and Urban Development, 1978:31). Since the housing subsidy moratorium of January 5, 1973, this program has been suspended. Current activity consists of funding commitments issued before the moratorium and amending existing contracts.

With the passage of the U.S. Housing Act of 1937, three additional types of housing assistance were made possible. The Section 8 program, later put into effect by part of the Housing and Community Development Act of 1974, established a rent subsidy for low-income families, thus making decent housing in the private market available. The Department of Housing and Urban Development makes up the difference between what a low-income household can afford and the market rent for an adequate housing unit. Housing that is subsidized must meet certain standards of safety and sanitation. In addition, the rent for these units must fall within the range of fair market rent determined by HUD. This rental assistance may be applied to existing housing, newly constructed housing, or

**The authors are, respectively, Research Associate, LeBonheur Children's Medical Center; Associate Professor of Marketing, University of Nebraska, Omaha, Nebraska; and Professor of Sociology, Memphis State University, Memphis, Tennessee.*

substantially rehabilitated units. Local public housing agencies administer the existing program, certify eligible tenants, inspect the units proposed for subsidy, and contract with approved landlords for payment. Proposals for substantial rehabilitation or new construction may be submitted by non-profit and profit-motivated developers, alone or in conjunction with public housing agencies. Upon approval of proposals, HUD contracts to subsidize the units to be occupied by eligible families. To be eligible, families must be termed low-income, with incomes amounting to 80.0 percent or less of the area median income, and pay between 15.0 and 25.0 percent of their income for rent, including utilities. In addition to the housing payment from HUD or a public housing agency, the project owner receives tenant rent directly from the eligible family occupying the unit. The total amount received by the owner for rent is fixed in the contract.

In accordance with Section 8, certain restrictions are imposed on the placement of potential sites for new construction projects. First, the site and neighborhood must be suitable from the standpoint of facilitating and furthering compliance with the applicable provisions of the Civil Rights Acts of 1964 and 1968. A second restriction prohibits the location of a site in a racially-mixed area if the project will cause a significant increase in the proportion of minority to non-minority residents in the area (24 CFR:330). In addition to new construction projects and the conversion of existing housing, the Section 8 housing program includes provisions for renovated private dwellings to be converted to the Section 8 housing program.

Another portion of the 1937 Housing Act also dealt with provisions for public housing. In accordance with the Section 23 program, HUD pays basic annual contributions that allow local public housing agencies to lease private housing to low-income families at affordable rents. These annual subsidies make up the difference between the rents paid to private owners and what the low-income tenants can afford. The amount of rent paid by the tenant is based on his/her income, but cannot exceed 25.0 percent of the adjusted income. Local public housing authorities are allowed to participate in this program. In the late 1970s, Section 23 was superseded by the Section 8 program. Units previously covered under the former are now being converted to the Section 8 housing program.

Finally, the 1937 Housing Act also established guidelines for the most familiar type of public housing—low-income housing projects. Local public housing agencies develop, own, and operate low-income public housing projects, with HUD furnishing technical and financial assistance. This financial aid takes two forms. First, HUD provides preliminary loans for planning, and second, HUD pays annual rent subsidies to the public housing agencies. Tenant rent, based on ability to pay, contributes to operating costs for the housing project.

Since the 1930s, legislative mandates regarding public housing have changed in intent and function. The earlier housing programs, notably Section 221(d)(3) and Section 236, are primarily concerned with making the construction or substantial rehabilitation of public housing attractive to financiers through the availability of HUD-insured mortgages and below-market interest rates. Additionally, participating tenants may qualify for rent supplements under the Section 8 program. Later housing programs like Section 8 and Section 23 are more concerned with providing rent subsidies. Both of these programs enable low-income tenants to rent housing in the private market, including existing housing in good condition. Rent subsidies are paid by the Department of Housing and Urban Development.

Although well over one million public housing units are in existence throughout the United States, research on the subject has been somewhat limited in scope. For the most part, studies of public housing have focused on various aspects of neighboring, such as the degree of tenant interaction and tenant well-being (Taube & Levin, 1971; Eiseman, 1975; Angrist, 1974). Very little research has been devoted to the broader issue of whether public housing is related to neighborhood change, specifically changes in property values. Instead, it has been accepted as common sense that the introduction of public housing causes a decline in property values.

The following analysis attempts to focus on this common sense notion in a systematic manner.

Data And Methods

Since there was no single data set containing all of the variables perceived to be of importance in an analysis of the relationship between subsidized housing and single-family home sales prices, a data set was constructed by taking specific items from four sources: (1) *1970 U.S. Census of Population and Housing;* (2) *1980 U.S. Census of Population and Housing;* (3) a computerized sales list representing all residential sales in the city of Memphis from 1968-1979; and (4) information on the names and locations of public and federally-assisted housing sites in the city of Memphis.

The Memphis Housing Authority and the Memphis Department of Housing and Community Development provided the names and locations of federally-subsidized housing complexes in Shelby County, as well as the specific types of housing programs, the year of proposal approval or proposal submission for each site, and the year of occupation. The 22 *subsidized* housing sites in this analysis were limited to those which were approved and/or occupied between 1968 and 1979. These cases represent housing subsidized under Section 23, Section 8, Section 236, and Section 221(d)(3) housing programs, as well as low-rent public housing.

Once the housing sites were determined, neighborhood boundaries for each site were delineated by examining aerial photographs and land use maps circa 1970.[1] As often as possible, natural neighborhood boundaries such as railroad tracks, interstate highways, major streets, and vacant land were utilized. Since it was necessary to identify north, south, east, and west boundaries for each site, natural neighborhood boundaries such as public parks and

waterways provided some indication as to where predominantly residential land use gave way to other patterns of land use. Within these boundaries, specific census blocks were identified.

Additionally, comparison or control neighborhoods without public housing were delineated for each of the 22 neighborhoods containing subsidized housing. An attempt was made to match each pair of neighborhoods as closely as possible with regard to social and economic characteristics.[2] For the majority of the matched pairs, both the public housing and control neighborhoods are located in the same census tract, and the majority of paired neighborhoods lie adjacent to one another. With their boundaries identified, these site and control neighborhoods became the unit of analysis.

One issue which emerged from this method of control neighborhood selection concerned the potential spillover effect of subsidized housing neighborhoods on adjacent control neighborhoods. While these neighborhoods are, in fact, adjacent, their physical distance from each other is, in most cases, at least one-half mile. That is, by aggregating blocks, and in most cases at least ten blocks were aggregated, relatively large land area neighborhoods were created. Thus, the potential spillover effect was minimized, though it is recognized that some may have occurred.

Three dependent variables were selected for analysis: home sale price, the number of sales, and a computed ratio of neighborhood home sale price to the home sale price for the city. The computed ratio served two purposes. First, it was intended to be an adjustment for inflation. That is, it controlled for the natural tendency of property values to increase over time. Second, it indicated whether the appreciation rate of residential sales prices in the study neighborhoods were lower than, higher, or comparable to the average appreciation rate of residential property in the city. These block data were taken from a computerized sales list and represented all residential sales in the 12-year period from 1968 to 1979, a time interval that allowed for longitudinal analysis. However, due to the small number of home sales in each year in several of the areas during this time period, the sales data were aggregated at the block level for each neighborhood, then aggregated into three four-year time intervals in order to stabilize statistics. Again, the purpose of this research was to determine whether the introduction of public housing is related to changes in residential sales price patterns. Therefore, if there is no relationship between public housing and home sales price patterns, then there should be no marked differences in mean sales prices and ratios between or within control and site neighborhoods.

Results

The statistical procedure utilized, t-test for dependent samples, was dictated by the characteristics of the data.

Furthermore, upon initial examination of the sales data, it was apparent that 11 of the 22 pairs of neighborhoods had no sales for at least one time interval. Since inclusion of data from these neighborhoods would have biased the findings, these 11 pairs were excluded from the analysis. This exclusion reduced the number of housing sites to 11.

In Table 1, there appears to be little difference in the average prices and ratios between the site and control neighborhoods. As expected, there was an overall increase in average sales price over the 12-year period in both site and control areas. Additionally, the ratios between neighborhood and city average sales prices increased over time in both sites and controls. There was no observable difference between the rate of increase for site and control neighborhoods.

The results of the t-tests are reported in Tables 2 through 4. As can be seen, inter-neighborhood differences

Table 1
TYPE OF HOUSING BY NEIGHBORHOOD MEAN SALES, PRICE, AND COMPUTED RATIO FOR SELECTED TIME INTERVALS
(N = 11)

Type of Housing	Time Interval 1 1968-1971	Time Interval 2 1972-1975	Time Interval 3 1976-1979
Neighborhood 1			
Section 8 Housing	55	39	56
	$28,051	$35,395	$51,470
	1.59	1.44	1.98
Control Neighborhood	8	9	21
	$33,637	$39,507	$54,405
	1.91	1.61	2.10
Neighborhood 2			
Section 236/8 Housing	175	98	133
	$26,373	$37,657	$45,233
	1.50	1.53	1.74
Control Neighborhood	32	16	23
	$19,200	$28,295	$34,418
	1.09	1.15	1.33
Neighborhood 3			
Section 236/8 Housing	83	77	97
	$14,151	$19,723	$25,946
	.80	.80	1.00
Control Neighborhood	50	43	49
	$12,653	$15,834	$21,776
	.72	.65	.84
Neighborhood 4			
Section 236/8 Housing	36	53	63
	$11,793	$17,780	$24,760
	.67	.72	.95
Control Neighborhood	3	3	2
	$15,725	$21,488	$28,475
	.89	.88	1.10
Neighborhood 5			
Section 236/8 Housing	3	19	18
	$19,208	$27,650	$39,100
	1.09	1.13	1.51
Control Neighborhood	14	27	24
	$17,329	$27,808	$35,448
	.98	1.13	1.37
Neighborhood 6			
Section 236/8 Housing	10	6	4
	$17,913	$23,342	$30,713
	1.02	.95	1.18
Control Neighborhood	68	32	39
	$17,525	$24,713	$32,679
	1.00	1.01	1.26

(continued)

Table 1 (continued)

Type of Housing	Time Interval 1 1968-1971	Time Interval 2 1972-1975	Time Interval 3 1976-1979
Neighborhood 7			
Section 236 Housing	83	55	81
	$9,053	$12,938	$17,523
	.51	.53	.68
Control Neighborhood	31	28	32
	$11,912	$16,040	$23,553
	.68	.65	.91
Neighborhood 8			
Low-Rent	36	54	91
Public Housing	$18,891	$26,296	$38,358
	1.07	1.07	1.48
Control Neighborhood	203	67	60
	$12,662	$14,588	$19,525
	.72	.59	.75
Neighborhood 9			
Low-Rent	6	5	3
Public Housing	$12,392	$17,757	$25,940
	.70	.72	1.00
Control Neighborhood	16	23	30
	$12,645	$17,124	$25,000
	.72	.70	.96
Neighborhood 10			
Section 221(d)(3)	31	52	59
Housing	$ 9,690	$12,861	$17,796
	.55	.52	.69
Control Neighborhood	8	14	20
	$11,291	$17,485	$22,750
	.64	.71	.81
Neighborhood 11			
Section 221(d)(3)	47	38	61
Housing	$13,345	$16,042	$23,287
	.76	.65	.90
Control Neighborhood	28	30	28
	$12,072	$17,779	$24,134
	.69	.72	.93

in mean sales price and ratio do not indicate true differences in the areas within any of the three time periods. In addition, mean sales prices increased significantly across the three time periods. Intra-site ratios increased significantly across two of the time periods($t = -7.76$, and $t = -8.91$). Finally, mean sales price increased significantly across the three time intervals, as did two of the three ratios.

Table 2
RESULTS OF T-TESTS BETWEEN SITE AND CONTROL NEIGHBORHOODS
(N = 11)

Variables	T-value	Probability*
Home Sales Price		
Time Interval 1	-.32	.75
Time Interval 2	-.37	.72
Time Interval 3	-.72	.49
Home Sales Price Ratio		
Time Interval 1	-.30	.77
Time Interval 2	-.35	.73
Time Interval 3	-.71	.50

*The probability factor represents the likelihood that this difference occurred by chance.

Table 3
RESULTS OF T-TESTS WITHIN SITE NEIGHBORHOODS
(N = 11)

Variables	Mean	T-value	Probability
Home Sales Price			
Price-Time 1	$16,442	-8.07	.000
Price-Time 2	22,495		
Price-Time 2	22,495	-8.13	.000
Price-Time 3	30,920		
Price-Time 1	$16,442	-9.35	.000
Price-Time 3	30,920		
Home Sales Price Ratio			
Ratio-Time 1	9327	.92	.377
Ratio-Time 2	.9145		
Ratio-Time 2	.9145	-7.76	.000
Ratio-Time 3	1.1918		
Ratio-Time 1	.9327	-7.91	.000
Ratio-Time 3	1.1918		

Table 4
RESULTS OF T-TESTS WITHIN CONTROL NEIGHBORHOODS
(N = 11)

Variables	Mean	T-value	Probability
Home Sales Price			
Price-Time 1	$16,059	-7.80	.000
Price-Time 2	21,878		
Price-Time 2	$21,878	-9.13	.000
Price-Time 3	29,288		
Price-Time 1	$16,059	-11.19	.000
Price-Time 3	29,288		
Home Sales Price Ratio			
Ratio-Time 1	.9127	.61	.554
Ratio-Time 2	.8909		
Ratio-Time 2	.8909	-8.75	.000
Ratio-Time 3	1.1300		
Ratio-Time 1	.9127	-8.10	.000
Ratio-Time 3	1.1300		

Discussion

Caution must be exercised in interpreting the findings because of the very small number of sites in the final analysis and the lack of other descriptive variables. With this in mind, several points can be noted.

Based on these findings, there is no evidence to suggest that the introduction of public housing in an area causes home sales prices to stagnate or decline, either in absolute terms or in relative terms using sales in the city of Memphis as a basis for comparison. In other words, apparent differences between sales prices near subsidized housing sites and other areas of the city are most likely due to the price differences existing before the subsidized housing was even constructed. This interpretation seems reasonable in light of the findings of both the descriptive and analytical results. Even if the results of the t-tests are ignored because of the small sample size or the method by which control neighborhoods were selected, the pattern of little change is apparent in the description presented in

Table 1. In all 11 cases, the 1976-1979 sales price ratio was higher than the 1968-1971 ratio.

It is interesting that all of the 11 pairs which had to be eliminated from the analysis because of lack of home sales were situated in isolated areas. Without exception, the 11 site neighborhoods were geographically set apart from other residential developments, and most were located either in the midst of industry or bounded partially or completely by "wilderness" (undeveloped land). Given the meager housing supply present in these neighborhoods, a lack of home sales comes as no surprise. This finding also suggests a tentative pattern in the 1970s in Memphis involving the placement of assisted housing in areas devoid of other residents. Further research utilizing data from other major cities would indicate whether this trend is present at the national planning level.

FOOTNOTES

[1]It is difficult to define a concept such as neighborhood in other than geographic terms (Keller, 1968). In addition to physical descriptions of locale, however, neighborhoods have been conceptualized in terms of symbolic boundaries (Gans, 1962) and their social characteristics (Glass, 1948; Herberle, 1960; Berry, 1973). Finally, neighborhoods have been identified on the basis of the socio-economic status of residents (Shevky & Bell, 1955). For the purpose of this study, a neighborhood was considered to be a geographically distinct area with relatively homogeneous social and economic characteristics.

[2]In this case, neighborhoods were matched on percentage of black residents and median home value.

REFERENCES

Angrist, Shirley S. "Dimensions of Well-Being in Public Housing Families," *Environment and Behavior,* 6:495-516, December, 1974.

Berry, Brian J. L. *Consequences of Urbanization.* New York: St. Martin's Press, 1973.

Eiseman, Thomas. "Simulations and Requirements for Citizen Participation in Public Housing, the Traux Technique," *Environment and Behavior,* 7:99-123, March, 1975.

Gans, Herbert J. *The Urban Villagers.* New York: The Free Press, 1962.

Glass, Ruth, editor. *The Social Background of a Plan: A Study of Middlesborough.* London: Routledge & Kegan Paul, 1948.

Herberle, Rudolf. "The Normative Element in Neighborhood Relations," *Pacific Sociological Review,* 3:3-11, Spring, 1960.

Keller, Suzanne. *The Urban Neighborhood: A Sociological Perspective.* New York: Random House, 1968.

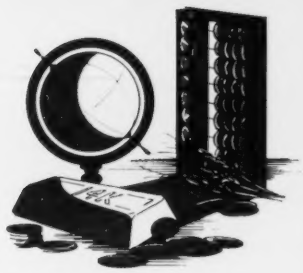
Shevky, Eshref and Wendell Bell. *Social Area Analysis.* Palo Alto, California: Stanford University Press, 1955.

Taube, Gerald and Jack Levin. "Public Housing as Neighborhood: The Effect of Local and Non-Local Participation," *Social Science Quarterly,* 52:534-542, 1971.

U.S. Department of Housing and Urban Development. *Code of Federal Regulations: Title 24, Parts 800-1699.* Washington, D.C.: Government Printing Office, 1981.

U.S. Department of Housing and Urban Development. *Programs of HUD. HUD-214-4-PA(2).* Washington, D.C.: Government Printing Office, 1978.

TAX CORNER



by Wm. Brent Carper, Ph.D, C.P.A.

RETIREMENT PLANS GET NEW LOOK WITH 401(k) PLANS

Introduction

A recent development in employee benefit planning is "401(k) plans," also popularly known as salary-reduction plans. Section 401(k) of the Internal Revenue Code is unique in that an employee is permitted to defer current taxation on the portion of his salary contributed by his employer to a qualified plan for the employee's benefit.

Purpose of 401(k)

As a general rule of federal taxation, if one has a right to elect either to receive income currently from an employer or to defer receiving such income, he is considered to have received that income in the year such election was made.[1] This rule is designed to prevent the shifting of income from one period to another period.

The 401(k) plan is an exception to this general rule. The purpose of section 401(k) is to permit an employee to elect to have his employer contribute a portion of his salary to a 401(k) plan or have the employer pay the amount directly to the employee. An exception to the rule arises where an amount of money is contributed directly to the 401(k) plan, because the employee is not currently taxed on such money. If the money is contributed to the employee directly, he naturally will be subject to income tax in the year of receipt.

A New Development

Although the privileges of 401(k) plans are sanctioned by the Internal Revenue Code for taxable years beginning after December 31, 1979, precise legal requirements are still uncertain due to the absence of final IRS regulations.[2] Proposed regulations were issued in November 1981 regarding 401(k) plans, but no regulations have been finalized.

The IRS has announced that the proposed regulations can be relied upon by employers in establishing and administering 401(k) plans.[3] Many employees, however, are reluctant to take advantage of various 401(k) plan opportunities because of the uncertainty surrounding publication of permanent regulations.

401(k) Plans As They Relate To Employers

Basics

In general, a 401(k) plan must be part of a profit-sharing or stock bonus plan. An employer contributes part of the employee's salary to a qualified trust. The employee is not taxed even though he has the option of receiving the employer's contribution in cash or having it paid to the trust.[4] As one might expect, 401(k) plans must meet basic requirements concerning employee elections, distributions, vesting, and non-discrimination requirements characteristic of employee retirement plans.

Employee Election

The plan must allow an employee to elect to have his contributions made to an employee trust or to take the cash.[5] Additionally, an employee may elect to receive a portion of the money subject to election in cash and have the remainder of the funds contributed to the plan.

Distributions

In order to qualify as a 401(k) plan, strict limitations must be placed upon the employee's right to withdraw amounts that were contributed to the plan in his behalf. As a general rule, contributions must not be distributable earlier than the occurrence of one of the following events:

The author is Director of Graduate Tax Programs and Associate Professor of Taxation, Memphis State University, Memphis, Tennessee.

1. Retirement
2. Death
3. Disability
4. Separation from service
5. Age 59 1/2
6. Hardship[6]

All of the events which might trigger a distribution are objectively determined with the exception of "hardship." The conditions for hardship are very subjective and can lead to inconsistency in plan distributions dependent upon how a plan administrator defines the term.

"Hardship" is not defined by the Internal Revenue Code; however, the proposed regulations do offer some guidance. The regulations state that "if the distribution is necessary in light of the immediate and heavy financial need of the employee," a distribution may be made due to hardship.[7] The tests that must be met in order for this distribution to take place are:

1. The determination that a financial hardship exists and the amount to be distributed must be made in accordance with uniform and non-discriminatory standards set forth in the plan;
2 The distribution cannot exceed the amount required to meet the immediate needs created by the hardship; and
3 The funds needed are not reasonably available from other resources of the employee.[8]

Vesting

The portion of an employee's salary which is contributed to a 401(k) plan and the earnings that these contributions generate are completely vested. In other words, the employee has a non-forfeitable right to these funds subject only to the restrictions already discussed regarding distributions.

Non-Discrimination

Section 401(k) plans must be designed so that plan participation does not discriminate in favor of employees who are officers, shareholders, or highly compensated.[9] Furthermore, 401(k) plans must operate so that contributions and benefits under the plan do not favor the above mentioned employees.[10] These rules attempt to guarantee that plan participation is open to rank-and-file employees and not to just a select few.

Advantages to Employers

When section 401(k) was first enacted, a primary advantage to employers was the fact that contributions to a plan were not considered as wages for purposes of payroll taxes. Although this relieved the employer of some responsibility for paying payroll taxes, the advantage now has been severely limited by amendments to Code section 401(k). The exemption for Social Security taxes expired on January 1, 1984, while the exemption for Federal Unemployment Taxes will expire on January 1, 1985.[11]

Another benefit to the employer is the deduction allowed for contributions to a qualified 401(k) plan. Contribution amounts, within the statutory limits, are considered ordinary and necessary business expenses. Other potential benefits accruing to the employer include better employee morale, less employee turnover, and greater inducement to attract and retain qualified employees.

Disadvantages to Employers

The main disadvantage of 401(k) plans to an employer stems from the uncertainty caused by the lack of permanent regulations in the area. The most notable unanswered question concerns the definition of "hardship" to be used in determining allowable employee withdrawals from plans. Another potential disadvantage for employers is the accounting and legal fees that may be incurred should permanent regulations require restructuring of existing 401(k) plans at a later date.

401(k) Plans As They Relate To Employees

The first point which an employee should bear in mind with respect to 401(k) plans is that the plan must first be established by the employer. To clarify, an employee has a right to establish an individual retirement account (IRA) on his own, but an employee has no right to participate in a 401(k) plan until the employer offers such a plan to the employee. Additionally, 401(k) plans are unique in that the employee contributes to his employer's plan with *pre-tax* dollars as opposed to *post-tax* dollars. Yet, the amount of an employee's contribution to the plan is treated as a contribution by the employer, and not the employee. Thus, the contribution is not taxed to the employee until distribution.

Advantages to Employees

If an employee is given the option of participating or not participating in a 401(k) plan, several factors weigh heavily for participation. First, the employee is totally vested as to the portion of salary contributed to the plan plus the earnings thereon. That is, the employee has a non-forfeitable right to the funds subject only to the restrictions placed on withdrawal of the funds by section 401(k).

Second, there is no federal income tax paid on the earnings generated by the employee's deferrals until the money is actually distributed. In addition, most state and local governments do not subject the deferred amounts to income taxation until distribution. In fact, some states, for income tax purposes, even exempt distributions from 401(k) plans.

Third, the amount an employee is allowed to contribute to a 401(k) plan usually exceeds the amount that one would be able to contribute to an Income Retirement Account (IRA). The amount one can contribute to a plan is subject to restrictions imposed by the employer, but under section 401(k) can range from 2.0 to 10.0 percent of the employee's salary. To the contrary, IRA contributions legally are limited to $2,000 per year per wage earner and $2,250 for wage earners with non-working spouses.[12]

Finally, an employee's election to participate in a 401(k) plan does not limit his right also to participate in an IRA.[13]

Disadvantages to Employees

In order to gain benefits the employee also must give up some benefits. The first obvious benefit relinquished by the employee is the current use of the money which he contributes to a 401(k) plan until some future date. If the employee cannot afford to set aside a portion of his current salary for 401(k) purposes, then his only option may be to not participate.

Second, statutory restrictions regarding early withdrawal of funds also are a factor. An employer may distribute funds to the employee only upon the occurrence of death, disability, retirement, separation from service, attainment of age 59 1/2, or hardship of the employee.[14]

Third, contributions made to a 401(k) plan are not necessarily insured in the sense that savings deposits in a bank or other savings institution are insured. In other words, there is no absolute guarantee that the employee will some day enjoy the benefits of his contributions.

Finally, the employee should realize that participation in a 401(k) plan may reduce other employee benefits available to him. An employee should inquire of his employer whether or not his contributions to a 401(k) plan will reduce other benefits such as health care coverage, life insurance, pension and profit-sharing benefits, etc.

Conclusion

As earlier stated, 401(k) plans can be initiated only as part of a profit-sharing or stock bonus plan. Although the establishment of such plans seemingly offers significant benefits to both employers and employees, 401(k) plans also have their limitations. Thus, the reader is encouraged to discuss the details of such plans with a competent tax advisor before taking any action.

FOOTNOTES

[1]Reg. § 1.451-2(a).
[2]P.L. 95-600.
[3]Notice 82-1, 1982-1 CB 353.
[4]Code Sec. 402(a)(8).
[5]Prop. Reg. § 1.401(k)-1(a)(1).
[6]Prop. Reg. § 1.401(k)-1(b)(7).
[7]Prop. Reg. § 1.401(k)-1(d)(2).
[8]Ibid.
[9]Code Sec. 410(b)(1)(B).
[10]Code Sec. 401(a)(4).
[11]Code Sec. 3121(v), as added by P.L. 98-21.
[12]Code Sec. 219.
[13]Ibid.
[14]Code Sec. 401(k)(2)(B).

The MID-SOUTH BUSINESS JOURNAL is available without charge. Please use this form to request a subscription or change an address and return to:

Bureau of Business and Economic Research
The Fogelman College of Business and Economics
Memphis State University
Memphis, Tennessee 38152

Check one:

☐ New subscriber

☐ Correction

Name and address:

Name _____

Address _____

City/State/Zip _____

Previous address for correction:

Address _____

City/State/Zip _____